

REPORT
OF
METROPOLITAN PARK COMMISSION

1916

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REPORT
OF THE
Mass:
BOARD OF METROPOLITAN PARK
COMMISSIONERS.

DECEMBER, 1916.



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OFFICERS.

COMMISSIONERS.

WILLIAM B. DE LAS CASAS, *Chairman.*

EDWIN U. CURTIS.

EVERETT C. BENTON.

ELLERTON P. WHITNEY.

CHARLES J. BARTON.

SECRETARY.

GEORGE LYMAN ROGERS.

ASSISTANT SECRETARY.

WILLIAM H. GOWELL.

ENGINEER.

JOHN R. RABLIN.

OFFICES, 18 Tremont Street, Boston, Mass.

The Commonwealth of Massachusetts.

REPORT.

The Metropolitan Park Commission presents herewith its twenty-fourth annual report.

The only considerable acquirements of lands made during the past year have been in completion of the holdings on the northerly side of Lake Quannapowitt in Wakefield, of those in the neighborhood of Hammond Pond in Brookline and Newton, and of lands along the shore of Revere and Winthrop, making the larger part of those required for the extension of Winthrop Parkway as a shore drive from its present terminus in Revere to the southerly end of Short Beach in Winthrop. Other smaller but very important acquirements have been made in the city of Boston, to enable the Commission to widen Otter Street as an approach to Charles River Embankment, and to improve Neponset Avenue as an approach to Neponset Bridge, which the Commission is required to rebuild.

In Somerville the care and control of a portion of Powder House Boulevard have been taken over so as to connect the newly constructed Alewife Brook Parkway with Mystic Valley Parkway along Mystic River. Transfers of land have been made to the city of Boston to provide for an extension by the city of Belgrade Avenue across West Roxbury Parkway, and to the city of Somerville of land on Mystic River, near Wellington Bridge, for location of a bath-house to be built and maintained by that city.

The most important new construction work carried on during the year has been Alewife Brook Parkway, from Massachusetts Avenue in Cambridge to Powder House Boulevard in Somerville, opened to travel November 15; Furnace Brook Parkway

in Quincy, from Hancock Street to Quincy Shore Drive, opened to travel November 18; Weston Bridge, between Weston and Newton, opened to travel November 24; and North Beacon Street Bridge, between Boston and Watertown, well advanced toward completion. Less extensive but important work on construction of several pieces of parkway and other greatly used roads has been done on Forest and Main streets in Middlesex Fells; on Revere Beach and Middlesex Fells Parkways; on the Speedway Drive along Charles River; and on Lynn Fells Parkway. A connecting road between Unquity Road and the automobile roads through Blue Hills Reservation to Furnace Brook Parkway in Quincy has been built, and the subgrading of Dedham Parkway has been extended to the road through Stony Brook Reservation. A service road from Boylston Street to the edge of Hammond Pond, and additional pieces of service road, to facilitate spraying and other protective work, have been built in Blue Hills Reservation. The boiler house and incinerator at Revere Beach have been completed and in use during the present season; and an addition to the police headquarters at Blue Hills Reservation has been nearly completed. A concrete bulkhead at Revere Beach and 780 feet of sea wall at Nantasket have been completed. Work is under way on a convenience station for women at Nantasket. Water and sewerage have been provided, and minor repairs made to buildings at Riverside Recreation Grounds; and band stands have been built at Woburn Parkway and at the Sheepfold Recreation Grounds in Middlesex Fells.

The cost of all lands thus far acquired for park reservations aggregates approximately \$5,392,748.66, and for parkways, \$2,109,827.77. All but sixty-four land claims, aggregating approximately \$97,394.50, have been settled.

The coming year (1917) will be the twenty-fifth anniversary of the first act of the Legislature directed toward the establishment of the Metropolitan Park System. In 1892 Metropolitan Park Commissioners, to be appointed by the Governor, were directed to consider the advisability of laying out ample open spaces for the use of the public in the towns and cities in the neighborhood of Boston, and to report a comprehensive plan for laying out, acquiring and maintaining such open spaces.

Their report was made to the Legislature of 1893, with a comprehensive plan and recommendations for immediate acquirement of certain great areas of wooded wild lands, and thereafter a further study of details and gradual progression in carrying out the entire general plan. The Legislature of 1893, by chapter 407 of the acts of that year, approved the recommendations of the preliminary commission of 1892 by authorizing the appointment of a permanent commission, and by an appropriation of \$1,000,000, which was the estimated cost of acquiring the wooded reservations. In the next year further appropriations were provided which made possible the acquirement of Revere Beach, lands bordering Charles River and lands for the first parkways or boulevards.

The amount of money appropriated in subsequent years for this work is in itself evidence that the public has approved the general plan of 1893 for the Metropolitan Park System, but a brief summary of what is now comprised in the Metropolitan Park System is essential to an understanding of the reasons for this approval and of what remains to be accomplished.

Under the initial appropriation of 1893 the great wooded reservations — Blue Hills and Middlesex Fells, the Stony Brook Woods, as part of a suggested parkway from the Boston parks to the Blue Hills, and the Waverley Oaks, now known as Beaver Brook, and Hemlock Gorge Reservations, smaller detached areas of exceptional beauty — were acquired. They were first acquired because they were in danger of destruction by fire, insect pests and random real estate development. The lines of these reservations remain practically the same as when first acquired. No other large wooded reservations have been since acquired. They then aggregated 7,349.63 acres in addition to 1,200 acres of water reservations in Middlesex Fells, and in acreage they are still the largest part of the Metropolitan Park System. Revere Beach for a length of 3 miles was acquired next. The Boston, Revere Beach & Lynn Railroad was removed to its present location and a driveway built following the beach along the previous railroad location. In 1894 the suggestion of a special commission that lower Charles River be made a nontidal basin by a dam between the West

Boston Bridge and the Craigie Bridge was not adopted; but the accompanying recommendation for acquirement of the banks of the lower river as far as the first dam at Watertown, not already owned by Boston and Cambridge, was approved. Subsequent appropriations authorized further acquirements from Watertown to Hemlock Gorge, at Newton Upper Falls. In 1894 the Parkway Act, chapter 288 of that year, gave further authority and an appropriation for parkway acquirements and construction. The first acquirements under this act were for West Roxbury Parkway, in extension of the previous acquirement of Stony Brook Woods as a parkway between Blue Hills, and other acquirements made at the same time by the Boston Park Commission to provide for a connection with the Boston parks at the Arboretum. The West Roxbury Parkway lands were at once transferred to the Boston Park Commission for development, because of a belief that that Board would sooner be provided with funds for construction; but as no action looking to construction was taken by the city of Boston, they were retransferred to this Board by act of the Legislature in 1915, and a special report as to cost of construction required of this Board. Initial acquirements were also made for a portion of Middlesex Fells Parkway and for the portion of Mystic Valley Parkway along the east shore of Mystic Lake.

The Park Act of 1893 provided that the cost of the parks and reservations should be repaid by the District to the Commonwealth, while the Parkway Act of 1894 provided that one-half the cost of the parkways should be repaid by the District and the other half remain a charge upon the Commonwealth at large. The District pays about $55\frac{1}{2}$ per cent. of the entire State tax, so that the proportion of the cost of the parkways to be borne by the District is $77\frac{3}{4}$ per cent. and that of the Commonwealth outside of the District, $22\frac{1}{4}$ per cent.

Following these early acquirements further takings have been made under the Park Act of 1893 and subsequent park acts at Lynn Shore, Winthrop, Quincy and Nantasket Beaches and along the banks of Mystic and Neponset Rivers, and their present construction and development provided for. Under the Parkway Act of 1894 and subsequent parkway acts further

acquirements and construction have been for the extension of Middlesex Fells, Mystic Valley and Blue Hills Parkways, and for Furnace Brook, Neponset River, Old Colony, Dedham, Revere Beach, Lynnway, Winthrop, Alewife Brook, Quannapowitt and Fresh Pond Parkways, and for some of the drive-ways along the river banks and on the borders of the wooded reservations. The land for the parkway drives, now aggregating 1,180.92 acres, provides for a total length of 61 miles. In the reservations much work of protecting and making them available for use of the public has been done. The woods have been cared for and developed, roads and paths built, and administration buildings, bath-houses, band stands, shelter buildings and comfort stations provided. Of the parkways, 37.72 miles of roadway have been built. Further details of all this construction and development, and the amount of property cared for by this Board, were given in the report of the Board for 1915. Land for the reservations has cost \$3,392,748.66, and the development, \$3,837,552.05. Land for parkways has cost \$2,109,827.77, and the construction, \$3,887,116.18. The cost of the Charles River Dam and Embankment is not included in this amount, as most of that work was done by a special commission under a separate act and afterwards transferred to the care of this Board.

While this work has followed the general purpose, and, with rare exceptions, the suggestions of the report and plan of the preliminary commission, the order and extent of accomplishment have been largely determined by the order and purpose of appropriations, and this, again, has been determined chiefly by the order in which public interest and urgency have manifested themselves in petitions to, and in action thereon, by the Legislature. The Commission itself early recognized that the expenditure involved in carrying out the plan would be very great, and did not wish to hurry the work or induce appropriations except when, for some special reason of necessity or opportunity which might be lost, expenditure seemed to warrant urging immediate action. It has, however, always been prepared to give information and estimates for preparation of petitions and bills and at hearings before the Legislature. Its suggestions and recommendations have been generally followed,

but in some cases they have been wholly or in part disregarded, and smaller appropriations, or less authority, given than were estimated or recommended. As a result, a large part of the general plan suggested in 1892 has been accomplished, but there have been some omissions or only partial completion of work begun, which gives an incompleteness of accomplishment and concentrates public comment almost more on what has not been done than on what has been done. Each year this is evidenced by new petitions to the Legislature to authorize the construction that is necessary to provide for some omitted portion which for one reason or another seems to the petitioners to be the most important for immediate action, or at least most desired by the petitioners.

It seems wise at this time to call special attention to this phase of the work and submit recommendations in regard to it.

The claims for practically all acquirements of land had been settled before 1912. The few which remained unsettled were, for the most part, those as to which there was some defect of title or difficulty in locating the persons entitled to payment.

The Metropolitan Parks Loan, Series Two, appropriations for land acquired prior to 1912, has been exhausted. A claim for land acquired from the National Sailors' Home for Furnace Brook Parkway prior to that time remains unsatisfied, owing to delays beyond the power of this Board to control. This claim may now be settled for the sum of \$7,000, and an appropriation of that amount as an addition to Metropolitan Parks Loan, Series Two, is recommended.

In 1912 a number of bills for completion of work already begun and for extensions of the parkways were united into a single bill as chapter 699 of the Acts of 1912. This bill specified amounts from \$10,000 to \$475,000 for the several projects named, and that the total appropriation of \$1,000,000 should become available at the rate of \$200,000 in each year for a period of five years. Estimates previously furnished by the Board were used in making up the amounts named in the bill, with the result that the appropriations authorized were in some cases insufficient to provide fully for the work. Further appropriations are necessary for completion, and are recommended as an addition to Metropolitan Parks Loan, Series Two, as follows: —

For acquiring land for the extension of Winthrop Parkway as far as the southerly end of Short Beach in Winthrop, \$30,000. The land already acquired and paid for comprises all that is necessary for the extension of the parkway around and protecting the hill at the Beachmont section of Revere to the junction of Winthrop Avenue and Endicott Street, and several pieces of land and buildings on Short Beach. The appropriation recommended is for acquiring the rest of the land and buildings on Short Beach.

For extending Fresh Pond Parkway to the Fresh Pond Water Reservoir of the city of Cambridge, including the rebuilding of a bridge, the land to be given by the city of Cambridge, the sum of \$10,000. A taking made for this project in 1915 failed of concurrence by the city government and water board of Cambridge. These bodies have since expressed a desire to have the taking renewed, but a re-estimate of the cost of construction shows that the work will now cost the increased amount indicated by the recommendation.

For Dedham Parkway for land the sum of \$15,000, and for construction, \$10,000. The appropriation for this project, contained in chapter 699 of the Acts of the year 1912, was based upon an estimate made many years before. A Dedham committee obtained very reasonable prices for the land, but, even so, the appropriation was sufficient to provide for the land only as far as a narrow street leading down to the highway to Boyden Square, the terminus originally suggested. The appropriation required is for acquirement of land and buildings on this narrow street to provide width enough to carry the parkway to the neighborhood of the main highway and bridge of the town over Mother Brook to Boyden Square.

For Quannapowitt Parkway, lands and construction across the northerly end of Lake Quannapowitt in the town of Wakefield, the sum of \$25,000. The estimate made by the Board for this project in 1911 was approximately \$68,000. The appropriation in chapter 699 of the Acts of 1912 was \$50,000. The land, with one claim to be settled, has either been given or acquired at reasonable prices. The balance for construction is insufficient, and the increase in cost of labor and materials now makes the amount stated necessary for carrying out this project.

In subsequent years special acts have provided special appropriations for specified projects, which, for practically the same reasons as those previously recited, have proved insufficient, and additional appropriations for carrying out these projects are recommended as follows:—

In 1915, by chapter 249 of the Special Acts of that year, appropriation was made from the Metropolitan Parks Maintenance Fund to provide for improving the sanitary condition of Aberjona River through lands of Mystic Valley Parkway in the town of Winchester. This appropriation has been expended, and the further sum of \$5,000 is necessary to complete the work.

By chapter 300 of the General Acts of 1915 this Board was required to rebuild and maintain Neponset Bridge and approaches in Boston and Quincy. Owing to unforeseen difficulties in the way of acquiring land and necessary permits, the work has been delayed, and upon preparation of the detailed plans and re-estimate, it is found that a further appropriation of \$100,000 as an addition to Metropolitan Parks Loan, Series Two, will be required for carrying out this project. In explanation of the necessity for this delay in beginning the work and for the increased appropriation recommended, it may be stated that the alinement of the highway approach on the Boston side of the bridge had to be adjusted to accommodate both the highway travel of Neponset Avenue and that of Old Colony Parkway. The highway had been built only to the width of the old bridge, which was less than that required for the new bridge. A part of the land had been occupied by buildings of a coal wharf, and strong remonstrance to giving up this land so occupied was made in a form which compelled public hearings before this Board and before the city council of Boston, the Board of Port Directors, and the United States Engineer, the approval of all of which bodies had to be obtained before construction could be begun. This opposition has all been cleared away and the necessary approvals secured. The increased cost of changes made necessary by these matters and the increased cost of construction now require the increased appropriation recommended.

By chapter 116 of the Resolves of 1916 the sum of \$10,000

was appropriated from the Metropolitan Parks Maintenance Fund for filling and surfacing a playground, authorized by chapter 130 of the Resolves of 1913, on the harbor side of Nahant Beach Bath-house. This appropriation was insufficient; and because of this fact and of the increased cost of work at this time, a further appropriation of \$20,000 from the Metropolitan Parks Maintenance Fund will be necessary to carry out the work fully. In further explanation of this insufficiency of the previous appropriation it may be stated that the filling for this land was authorized to be made, under a previous act, from dredging of Lynn Harbor, to be done by the Board of Harbor and Land Commissioners. But the filling furnished from that dredging fell short of expectations and the full amount required must now be provided from other sources; and unless provided at once, the filling already in place will be exposed to erosion, which may cause it to slip back into the harbor.

By chapter 186 of the General Acts of 1916 a portion of the money necessary for an extension of Mystic Valley Parkway in Arlington, around the southerly end of Mystic Lake, to a connection with the State highway to Lexington and Lowell, under construction, was appropriated. A further appropriation of \$25,000 is required for completion of construction and for acquirement of a piece of land required for relocation of service buildings, which will have to be removed to make way for the extension. This further appropriation in subsequent years was understood to have been contemplated at the time this first appropriation was made, and is essential to make the work already done of any real public service.

Certain special obligations of maintenance and adequate provision for the public can be provided for only by special appropriations in addition to the normal maintenance appropriations available for such purposes, and appropriations, therefore, for these purposes, are recommended as follows:—

The transfer to this Board of Charles River Dam, Basin and Embankment, built by the Charles River Basin Commission, required this Board to carry out provisions of the act under which these works were built. One of these provisions required that Broad and Lechmere Canals be kept dredged to a depth corresponding to that previously afforded by high tide. These

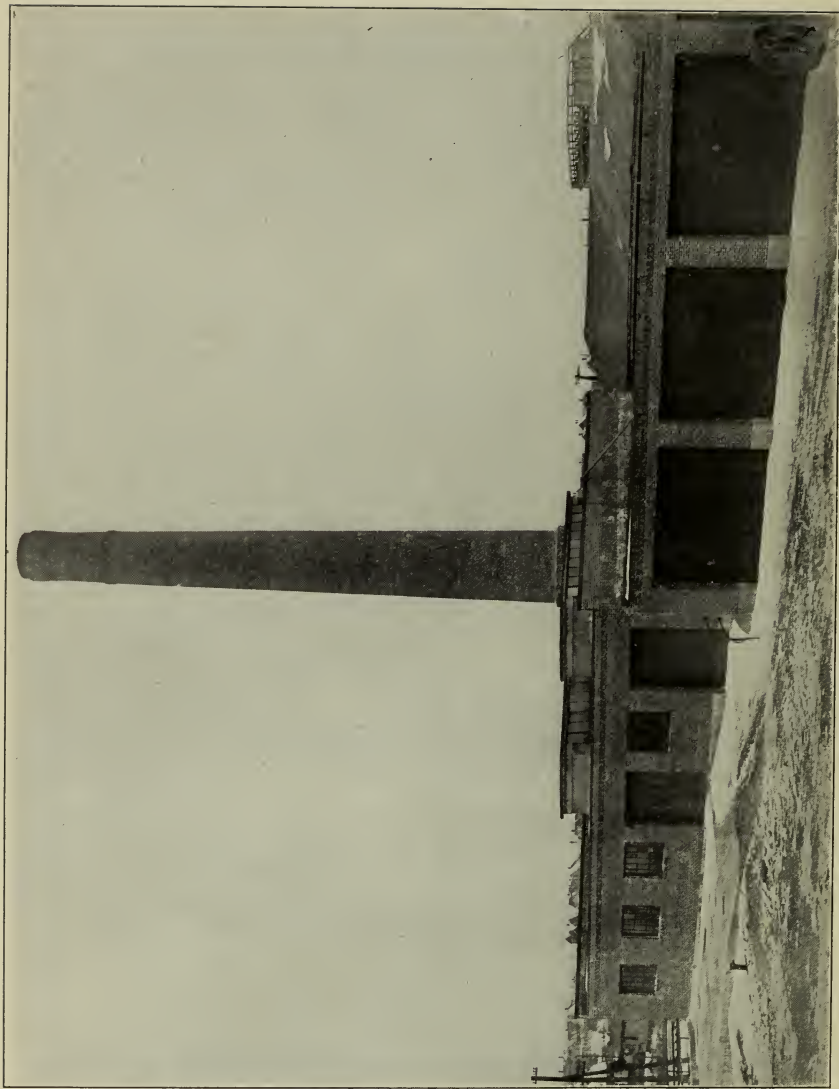
canals have shoaled since the transfer to the care of this Board, and an appropriation of \$7,000 from the Charles River Basin Maintenance Fund is now required for this work. Another provision of the same act requires that the Basin be kept open to navigation by breaking the ice in winter. It has proved difficult to hire tugs for this work, and the annual expenditure of \$3,000 to \$8,000 warrants that an appropriation of \$35,000 be made as an addition to the Charles River Basin Maintenance Fund to provide for the purchase of a tug to be operated by this Board for ice breaking.

In Blue Hills Reservation the danger of a serious spread of the gypsy moth has become acute. The usual maintenance appropriations are insufficient for the work which must be done. If great destruction and a future enormous expense for checking this pest is to be avoided, a special appropriation of \$43,000 against the Metropolitan Parks Maintenance Fund will be required for this year.

The Nantasket Beach Bath-house has been inadequate for several years, and efforts to increase its capacity by alterations and the addition of lockers have been insufficient to provide for the public. A substantial enlargement must be made, and for this purpose an appropriation of \$25,000 as an addition to the Nantasket Beach Loan is required.

County Road, through Nantasket Beach Reservation, is the only highway approach to the town of Hull. This road was transferred to the care of this Board some years since by the Legislature. It has been cared for as well as possible under the usual maintenance appropriations, but cannot be kept by the town of Hull in a condition corresponding to the portions beyond the Reservation without rebuilding. The cost of annual repairs is excessive, and it will be an economy to provide for rebuilding. As the cost of rebuilding will be considerable owing to special requirements in the act under which it was transferred to this Board, it is recommended that the rebuilding be accomplished gradually under special annual appropriations as an addition to the Nantasket Beach Loan, and an appropriation of \$40,000 for this purpose is recommended for this year.

The easterly road of Middlesex Fells Parkway, from Middlesex Avenue in Somerville across Wellington Bridge to its con-



REVERE BEACH RESERVATION. — Boiler House, Incinerator and Sheds.

tinuation in Medford beyond Revere Beach Parkway, was a highway before it was included in and made a part of Wellington Bridge and approaches for use as a roadway of the Middlesex Fells Parkway. It has to provide for an extraordinary volume of heavy traffic, as well as parkway travel. The portion in Somerville has been rebuilt with concrete surface by the Massachusetts Highway Commission. An extension of this, construction over the part in care of this Board seems to be the only way to insure a good surface and bring the cost of maintenance within reasonable limits. An appropriation of \$21,000 against the Wellington Bridge Maintenance Fund will be required for this purpose.

At Revere Beach a beginning has been made in providing for a group of fireproof service buildings and sheds to replace old wooden buildings and storage under the bath-house, which are now a serious fire risk. Several fireproof sheds and a boiler house and incinerator have already been built as a part of this group, and it is recommended that the entire group be gradually completed by building a part each year by an appropriation of \$20,000 yearly from the Metropolitan Parks Maintenance Fund until the group is completed.

Complaints continue in regard to the sanitary condition of Upper Charles River, caused by the variations in water level during the summer months. This matter has been reported upon several times in reports required of this Board by the Legislature. The last report, made in 1913, was exhaustive in regard to preserving a proper water level in the river above the Moody Street Dam of the Boston Manufacturing Company in Waltham, and recommended, as the only certain means of insuring the necessary permanency of water level in this part of the river, that the dam and flowage rights of the Boston Manufacturing Company be acquired. The recommendations of that report are renewed, and an appropriation of \$150,000, as an addition to the Metropolitan Parks Loan, will be required for carrying them into effect.

By chapter 628 of the Acts of 1910, as amended by chapter 439 of the Acts of 1911, this Board was authorized to connect detached portions of the banks of Charles River, already controlled by it, by purchase of land, and an appropriation of \$50,000 for such purchases was authorized. The Board has

been unable to carry out the purpose of this act by purchases, and deems it necessary that the authority conferred by the act should be enlarged to give the power of taking by eminent domain. An amendment of the act to this effect is especially desired for the purpose of acquiring land of the Boston & Albany Railroad which is not required for use for railroad purposes, and is now occupied only by dilapidated buildings rented for temporary purposes, the possession of which would make possible a connection with Commonwealth Avenue at the Essex Street Bridge, and so insure the possibility of future construction of a roadway from Commonwealth Avenue to boathouse locations, which are the best on the river, and to the driveways leading to the Stadium, Soldiers' Field, the Speedway, the Arsenal Road, and other roads to Watertown, Newton and Waltham. If present buildings should be replaced by more expensive ones, the cost of future acquirement would be very greatly increased.

The completion or extension of certain park and parkway roads over lands already acquired and held by this Board will make connection with other roads already built, and greatly increase the usefulness of the Park System. For this purpose additional appropriations for these extensions are recommended as follows:—

A driveway along Charles River in extension of Soldiers' Field Road has been partially subgraded. The completion of this driveway as far as Cambridge Street would greatly increase the usefulness of the existing driveways as an approach to the Stadium and Soldiers' Field and to the Brighton and Faneuil sections of Boston, and to Watertown and Newton. An appropriation of \$40,000 as an addition to the Charles River Basin Loan would be required for this purpose.

On the north bank of Charles River, between the end of Fresh Pond Parkway at Gerry's Landing and the driveway past the United States Arsenal, a driveway was partially subgraded under the emergency labor appropriations of 1914. The completion of this work would be of great public use, and will require an appropriation of \$90,000.

The extension of Winthrop Parkway from its present terminus around the hill at Beachmont to a connection with the public highway leading to Winthrop, over land already acquired by this Board, will make the already built portion of Winthrop

Parkway of some real use, and will furnish a much needed approach to the town of Winthrop and to the Winthrop Shore Driveway previously built by this Board under special act of the Legislature. This construction will also protect the shore at points where it is being so seriously washed away as to have already extended under and destroyed a part of the Revere highway to the Beachmont section of Revere. The estimated cost of this construction will be \$155,000, as an addition to the Metropolitan Parks Loan, Series Two.

In 1894 land for West Roxbury Parkway was acquired by this Board and transferred to the city of Boston in the expectation that construction would be done by the Park Board of that city. This not having been done, the Legislature in 1915 retransferred the land for this parkway to this Board and required a report in regard to the cost of construction. A large measure of public usefulness would be served by construction of the portion of this parkway between Center Street and the Stony Brook Reservation, Center Street giving an excellent communication with the Boston Park System. For this purpose an appropriation of \$125,000 will be required.

Revere Beach Parkway ends at Middlesex Fells Parkway. Between that point and the driveway along Mystic River in the city of Medford, the land bordering Mystic River was acquired by the city of Medford and later transferred to this Board. Construction of a driveway with a bridge over the Mystic River, connecting Revere Beach Parkway with the driveway along the river from Medford to Winchester, Arlington, Somerville and Cambridge, would make a continuous driveway from Revere Beach and all the cities and towns to which that gives approach to all the cities and towns of the Mystic valley and the western part of the Metropolitan Parks District. An appropriation of \$350,000 will be required for this purpose.

Drafts of bills embodying the necessary legislation to carry out these recommendations were deposited, with the recommendations of this report, in the hands of the Secretary of State as required by law.

Thus it seems advisable to call special attention at this time to matters of acquirement and construction. The maintenance of the reservations and parkways has presented no unusual

features during the past year. Full information in regard to all of these matters will be found in the accompanying reports.

The Board has noted with satisfaction the increased use of the woods, roads and paths by those riding in saddle, and has endeavored to improve these roads for their use, and, when practicable, to provide also a path beside the harder surface of the parkways. The automobile remains for the present the vehicle of travel which makes most use of the parkways. The safety of those using the parkways, however, is endangered by those who, for one reason or another, operate automobiles without license. Such operation is forbidden by law, but there is no way of knowing whether an operator has a license or is operating his own car except by stopping and interrogating him. It is obviously impossible to do this, except occasionally, for the special purpose of detecting such wrongdoers, and so cause fear of detection to all, or by stopping those who, by their conduct, arouse suspicion that they are unskilled or in bad condition or in possession of a stolen car. The license is the operator's only authority for having a car in his possession upon the highway. Without it, he is not only a trespasser, but, *prima facie*, a person unfit to operate the car or to be in possession of a car which may belong to or have been stolen from another person. Such an operator ought not to be on the road or in possession of a car. This Board has felt it to be its duty to require the arrest of any operator who is found to be without a license, as the only sure way of safeguarding duly licensed operators and the public generally against damage by those who cannot present the evidence of authority to be on the road, and of apprehending automobile thieves. The Board recommends a careful study of this matter in order that, if possible, some provision of law may be made which will reduce the stealing of automobiles and make it more difficult for persons to operate cars without license.

All of which is respectfully submitted.

WILLIAM B. DE LAS CASAS,
EDWIN U. CURTIS,
ELLERTON P. WHITNEY,
EVERETT C. BENTON,
CHARLE J. BARTON,

REPORT OF THE SECRETARY.

HON. WILLIAM B. DE LAS CASAS, *Chairman, Metropolitan Park Commission.*

SIR: — I submit herewith the annual report of the Secretary for the year ending Nov. 30, 1916.

1. ACQUIREMENT OF LANDS.

The takings by eminent domain have been few, and chiefly in order to define the boundaries of certain parkways authorized by chapter 699 of the Acts of 1912, for which the land had already been acquired by purchase, or to gain title to isolated parcels which could not be purchased on satisfactory terms. Takings were thus made covering the route of Quannapowitt Parkway, and a part of Winthrop Parkway as far as the junction of Sewall Avenue and Revere Street in Winthrop. The most important taking, although small in area, was for the widening of Otter Street from Beacon Street to the Embankment on Charles River Basin, under authority of the General Acts of 1916, chapter 245, making an entrance to Short Side Road from Beacon Street. A taking was also made under authority of the General Acts of 1915, chapter 300, of a part of Neponset Avenue, Dorchester, as an approach to the new Neponset Avenue Bridge to be built under that act. Considerable land has been purchased in Revere and Winthrop, on substantially the basis of 25 per cent. above the assessed value, for the extension of Winthrop Parkway. There are about seven parcels left to be acquired between the ocean and Endicott Avenue in Revere and Revere Street in Winthrop in order to give the Commonwealth title to all the land needed for this parkway as far as the junction of Sewall Avenue in Winthrop. The original appropriation of \$100,000, under

chapter 699 of the Acts of 1912, will be exhausted by the payment of claims outstanding for lands taken or under option in this section. Some 64 acres have been purchased in Newton for Hammond Pond Parkway, under the Acts of 1912. There have been a few small sales and exchanges of land for the purpose of adjusting claims and correcting the alinement of boundaries. The Board has also made a transfer of care and control to the city of Somerville of a bath-house site at the Somerville end of Wellington Bridge, Middlesex Fells Parkway, and to the city of Boston of sufficient land in West Roxbury Parkway to provide for the extension of Belgrade Avenue across said parkway. On the other hand, the city of Somerville has transferred to the Board for care and control so much of Powder House Boulevard as lies between the easterly terminus of Alewife Brook Parkway, constructed under the General Acts of 1916, chapter 288, and the drive on Mystic River.

Substantial progress has been made in the settlement of outstanding land damage claims. There are now 61 claims unsettled, which it is estimated will require about \$97,394.50 to satisfy. Of these claims, less than ten are in suit.

2. GENERAL ADMINISTRATION AND SUPERINTENDENCE.

For some two years the Board was in negotiations with the State House Commission and its expert relative to office quarters of the Board in the State House. No quarters were available, however, which provided the space and accommodations necessary for the conduct of the public business of the Board. Finally, on May 31, 1916, the Governor and Council terminated the uncertainty in which the Board had been kept by these negotiations by voting that no quarters be assigned the Metropolitan Water and Sewerage Board and the Metropolitan Park Commission in the State House. The Board then endeavored to renew its lease with the American Congregational Association, its present landlord, but the association was unwilling to consider a renewal of the lease on any terms, although the Board had been its tenant for eighteen years. The Board was therefore obliged to obtain new office quarters, and new quarters have been leased on the third floor of the Kimball

Building, 18 Tremont Street, to which the Board will remove as soon as possible.

During the year, Paul M. Hubbard, Esq., in the law and conveyancing department, resigned his position to take another of great responsibility in a trusteeship. The position is now occupied, with the consent of the Attorney-General, by Woodbury Rand, Esq., a well-known and experienced practitioner at the bar.

The details of the work and administration in the various divisions are before you in the weekly, annual and other reports of the superintendents. This report will be confined, therefore, to general topics or special features.

Revere Beach Division.

A great deal of work has been done this year in reconstructing sections of Revere Beach Parkway, which was originally built on a clay base before the advent of heavy automobile travel. The work involved the removal of this base and the substitution therefor of broken stone. Sections were thus reconstructed between Broadway and a point about 340 feet east of Mill Street, Revere; in the northerly road between Washington Avenue and Garfield Avenue, Chelsea; between Main Street and Broadway, Everett; and about 1,000 feet between Malden River Bridge and Middlesex Fells Parkway, Medford. It is expected that the saving in the annual maintenance cost of these sections will ultimately more than repay the cost of reconstruction. Some 3,000 shrubs have also been set out along this Parkway under general advice of the landscape architects, with a view to clothing unsightly spots and creating some features pleasing to the eye in a few sections of the Parkway where nothing can be borrowed from the neighboring territory.

The work of constructing shore protection, under the balance of appropriations made for the purpose by chapter 303 of the Special Acts of 1915, has been continued, and about 1,350 additional feet of concrete wall have been constructed from the Revere Street shelter to the Oak Island shelter. The shore is now protected by concrete walls from the bath-house shelter to the Oak Island shelter.

Chapter 104 of the General Acts of 1916 authorized the Board to expend a sum not exceeding \$5,000 for the purpose of constructing a public comfort station or sanitary building at King's Beach and Lynn Shore Reservation. So much opposition to the site selected by the Board for this building was made that, after a public hearing on the matter at which the opinion was almost unanimous among the citizens of Lynn present that no such building was needed, the Board suspended proceedings in the matter for the present.

The money appropriated by chapter 291 of the General Acts of 1915 for the completion of the playground, Nahant Beach Parkway, at the rear of the bath-house, has been practically exhausted. The further sum of \$20,000 is needed to complete the work and to put the surface into condition for playground purposes.

Revere Beach Bath-house opened June 16 and closed September 17, a period of 94 days. Of the 168,515 bathers using the bath-house this year, 101,110 were males and 67,405 females. The gross receipts were \$34,913.10.

The Nahant Beach Bath-house opened July 1 and closed September 10, a period of 72 days. The total number of bathers was 40,929, consisting of 22,913 male and 18,016 female bathers. The gross receipts were \$7,883.05.

Charles River Division, Lower Basin.

As previously noted, the Board made a taking, under the provisions of chapter 245 of the General Acts of 1916, of a strip of land on the westerly side of Otter Street between Beacon Street and the Boston Embankment. This taking enabled the Board to widen the driveway about 10 feet, making a total driveway width of 38 feet. The construction now consists of two sidewalks each 6 feet in width and a driveway 38 feet in width, forming a much better entrance to Short Side Road than existed before. A service yard for the storage of carts and other implements used in the care of the Embankment has been constructed below the surface of land purchased in 1915 at the corner of Chestnut Street and the Boston Embankment, under the provisions of chapter 102 of the General Acts of 1915. A

small, inconspicuous service house has also been constructed and the whole surrounded by a brick wall in harmony with the Embankment. The wall is screened by shrubs, and the service shed and yard will present a pleasing appearance to persons passing on the Embankment, as well as being of great utility in the work of upkeep of the Embankment.

The following sporting and public events took place on the Basin during the year:—

- April 13. Harvard crews rowing races.
- May 2. Harvard freshmen and Stone crew rowing races.
- May 2. Brown and Nichols and Cambridge four-oar crew rowing races.
- May 3. Harvard Varsity crews rowing races.
- May 4. Noble and Greenough school class rowing races.
- May 5. Technology four-oar crew rowing races.
- May 9. Harvard Rowing Association championship class rowing races.
- May 10. School boys' rowing races.
- May 12. Brown and Nichols and Rindge School rowing races.
- May 13. Technology and Tufts rowing races.
- May 13. School boys' rowing races.
- May 13. Brookline High and Exeter rowing races.
- May 17. Harvard Rowing Association rowing regatta.
- May 18. Harvard Rowing Association rowing regatta.
- May 19. Harvard Rowing Association rowing regatta.
- May 20. Harvard Rowing Association rowing regatta.
- May 20. Stone School and Cascadilla eight-oar rowing races.
- May 22. School boys' rowing races.
- May 23. School boys' rowing races.
- May 29. Interscholastic Rowing Association races.
- May 31. Interscholastic Rowing Association races.
- June 12. Technology dedication celebration; naval vessels and miniature battleships display; maneuvers by the Volunteer Power Squadron; sailing and rowing races and exhibition by aeroplanes.
- June 13. Technology barge "Bucentaur" trip across the Basin with record and archives.
- July 4. New England Amateur Rowing Association regatta.
- July 4. New England Amateur Rowing Association swimming races.
- August 12. New England Amateur swimming races.
- September 2. New England Amateur swimming races.
- September 4. New England Amateur rowing races.
- September 8. New England Amateur swimming races.
- September 25. "Boston American" girls' swimming races.
- October 25. Harvard class rowing races.

October 27. Harvard class rowing races.

November 3. Technology and Harvard rowing races.

November 8. Aero Club presented to Governor McCall a hydro-aeroplane for the State.

November 15. Harvard crew rowing races.

The list of band concerts held on the Embankment is given later.

Section 6 of chapter 524 of the Acts of the year 1909 requires the Commission to maintain throughout the year the channels and canals in the Basin, including Broad and Lechmere Canals in the city of Cambridge, at a depth prescribed in the original Charles River Basin Act of 1904, and clear of obstructions caused from natural shoaling. The Engineer reports that in order to carry out these statutory requirements it will be necessary to dredge the channel of Broad Canal at an expense of about \$5,000.

Charles River, Upper Division.

During the year Superintendent Elder of Beaver Brook Reservation was retired at his own request. He had performed loyal and efficient service for the Commission as Superintendent for twenty-two years, and long beyond the period of life when most men feel they are entitled to withdraw from active labors. Beaver Brook Reservation is now combined with Charles River, Upper Division.

The Riverside Recreation Grounds, which were given the Commonwealth by Mr. Charles W. Hubbard last year, have been conducted with a view to continuing, as far as it could be done consistently with public ownership, the privileges to which the boating, outing and picnicking parties formerly patronizing the grounds had been accustomed. The boat livery, restaurant, swimming pool and bowling alley privileges were leased by the Board for the season. As the Legislature made no appropriation for the maintenance of the grounds, the revenue derived from letting privileges was used to defray a part of the cost of maintenance, and in making a few of the many needed repairs to the buildings and improvements on the grounds. Much more ought to be spent in further repair of the buildings, in

putting new piers under the landing platforms and in improving the facilities of the grounds for athletic sports and picnicking purposes. Any revenue which may be derived from the grounds another year should be thus expended. A maintenance appropriation therefore has been asked for from the Legislature for the ordinary maintenance of the grounds the ensuing year.

The new Weston Bridge, the construction of which was authorized by chapter 368 of the General Acts of 1915, is practically completed, and was opened to public travel Nov. 24, 1916.

The road leading from Brooks Road, Brighton, to Charlesbank Road, Newton, authorized by chapter 188 of the General Acts of 1915, was opened for public travel May 20, 1916, and has been named Nonantum Road. If it were possible for the Board to acquire the necessary width of land between Cambridge Street, Brighton, and land now controlled by the Board next to the Brookline Gas Company lot on said street, and also to acquire a part of the site of the old Boston & Albany round-house at Cottage Farm Bridge, a direct and continuous drive would be possible from Commonwealth Avenue at Cottage Farm Bridge to the Speedway, the Harvard Stadium and to Newton and Watertown beyond.

Work has progressed well on the construction of the new North Beacon Street Bridge between Brighton and Watertown, authorized by chapter 780 of the Acts of the year 1914. The bridge will probably be opened to public travel early in the spring.

Middlesex Fells Division.

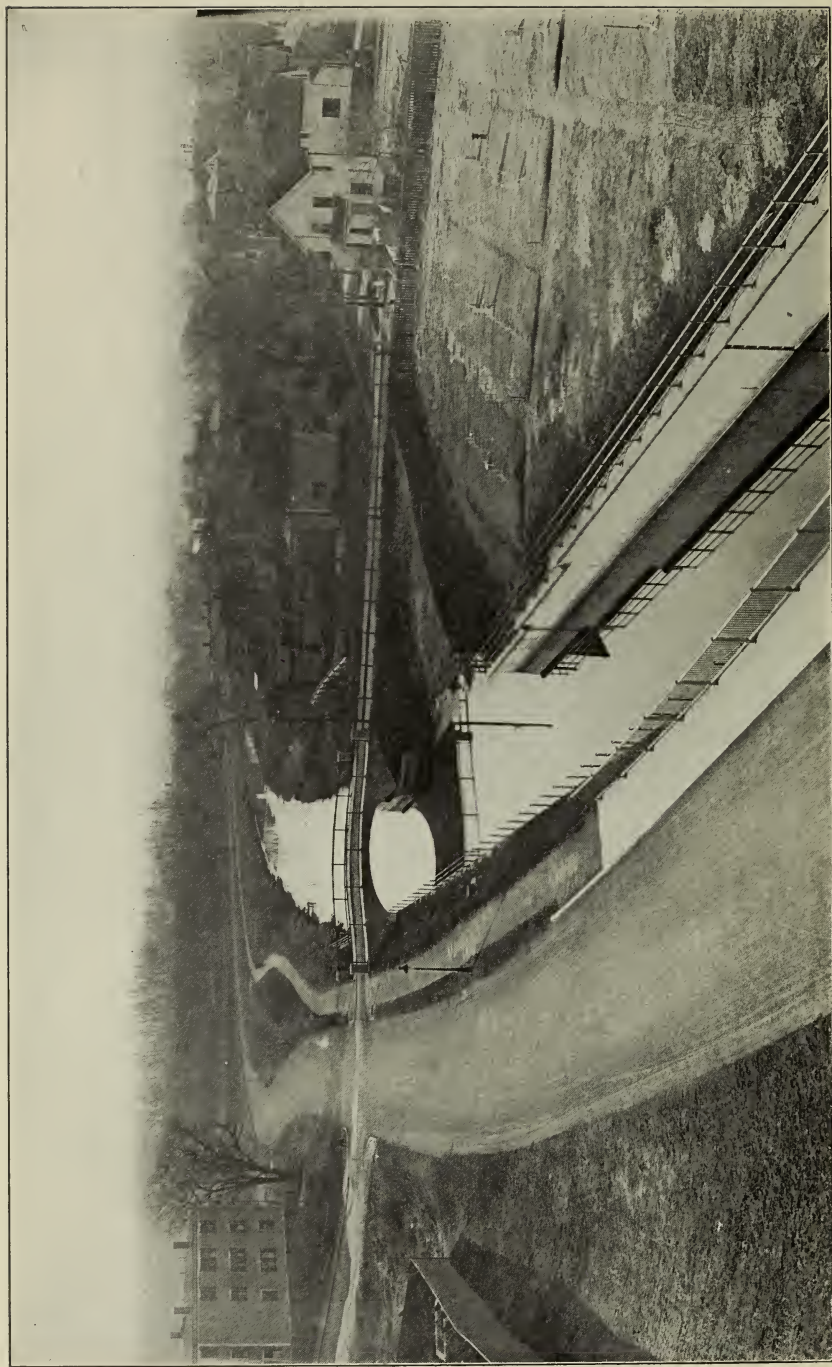
Public use of the Recreation Field at the Sheepfold section has greatly increased during the year. Additional tables for picnic parties, seats, swings and other apparatus for the playground have been installed. A band stand was also built, at which several band concerts were given on Sunday afternoons during the season. The old Sheepfold Building was leased and fitted up by the tenant for use as a refreshment stand. This locality has already become the gathering and recreative center of the Reservation.

All the sections of Forest and Main streets not previously

resurfaced in permanent form, about 4,600 feet in length altogether, have been resurfaced with asphalt-bound macadam and widened to a width of 26 feet. The entire length of these streets through the center of Middlesex Fells Reservation, from South Street, Stoneham, to Forest Street, Medford, has thus been permanently surfaced and, in most places, widened to a width of 26 feet.

During the year a considerable section of roadway surface of the pleasure driveway of Middlesex Fells Parkway, south of Wellington Bridge, broke up so badly that it became necessary to excavate 18 inches below finished grade and to fill with broken stone and build side drains to carry off the surface water. Considerable stretches of this parkway were built upon a clay foundation prior to the advent of heavy automobile travel, and a great deal of the same kind of reconstruction work will be necessary in the near future. In this connection, the Engineer reports that the easterly roadway of Middlesex Fells Parkway, from Middlesex Avenue to Wellington Bridge in Somerville, and from Wellington Bridge to the junction of Middlesex Avenue in Medford, which was originally a public highway, is in poor condition because of the extraordinary wear which this road is subjected to by all sorts of traffic. Chapter 491 of the Acts of the year 1901, which required the Board to rebuild Wellington Bridge, also requires that the bridge and its approaches shall be maintained by the Board for any purposes for which either highway or park roads may be used. This road, therefore, is subjected not only to a great volume of automobile and pleasure travel, as the main artery between Boston and the North Shore region, but also to a great deal of heavy teaming. The Engineer recommends that this section be resurfaced with Portland cement concrete, to conform with the surface laid on Middlesex Avenue, from Mystic Avenue to the parkway in Somerville, by the Massachusetts Highway Commission. The cost of this work, including subgrading, will be about \$21,000. A special maintenance appropriation has been asked for for this work.

The section of Alewife Brook Parkway from Powder House Boulevard to Massachusetts Avenue, the construction of which was authorized by the General Acts of 1915, chapter 243, was



ALEWIFE BROOK PARKWAY.

opened to travel Dec. 2, 1916. This stretch of parkway, together with the section of Powder House Boulevard, the care and control of which was given to the Board by the city of Somerville as previously noted, now provides a parkway drive under the control of the Board from Massachusetts Avenue to Mystic River. A new division made by the Board of the territory included in Alewife Brook Parkway assigns to Middlesex Fells Division that portion of the Parkway which lies northerly of the Central Massachusetts Division of the Boston & Maine Railroad, and extending from Little Pond to Mystic River, and to Charles River, Upper Division, so much of the Parkway as lies southerly of said railroad.

The appropriation of \$15,000, under General Acts of 1915, chapter 249, for the improvement of the sanitary condition of the Aberjona River, Mystic Valley Parkway, Winchester, was exhausted by the work which is more particularly described in the report of the Engineer. There was not money enough to do all the work desirable at that part of the stream known as Wedgemere Pond, near the Bacon Street Bridge. A further appropriation of \$5,000 would complete this work.

The general condition of the woods in Middlesex Fells Reservation is better than at any previous time since the original infestation by gypsy moths, and the woods have shown few signs of the infestation of leaf-eating insects. Although for several years the gypsy moths have been kept down to a point where they did very little damage to the foliage, this highly satisfactory condition could not make itself apparent because of the unusual invasion of native caterpillars, including the oak-leaf roller, forest tent and geometric caterpillars. This year, however, all these varieties of native insects have been reduced by spraying and natural causes, so that for practically the first time since the beginning of the fight against the gypsy moths the appearance of the woods has given unmistakable evidence of success. Much work, however, will still be needed each year to preserve this favorable condition of the woods.

Blue Hills Division.

The successful result in Middlesex Fells Reservation of what seemed years ago an almost hopeless struggle against the gypsy moths gives encouragement for the task of the same kind which threatens in a larger and, in some ways, more difficult theater of operations in the Blue Hills Reservation. This Reservation was not attacked by the moths until some time after conditions in Middlesex Fells had become acute. The Reservation is so large that it took considerable time for the results of infestation to manifest themselves. Even at the present time, it cannot be said that conditions are very bad in any particular spot, but partial infestation has spread over practically all the Reservation. The problem of suppression is peculiarly difficult, not only on account of the great area of nearly 8 square miles which must be cleared of underbrush and sprayed, but by the fact that the Reservation consists largely of a chain of hills hard to traverse with spraying apparatus and having few places where water for spraying can be obtained. Experience has shown that if any real headway is to be made in this work more money must be provided for apparatus for creating water supplies and for service roads and clearing out underbrush. A special maintenance appropriation has been asked for this purpose.

Chapter 237 of the General Acts of 1916 authorized the Commission to expend the sum of \$10,000 on the construction of Dedham Parkway to Stony Brook Reservation. This money was nearly enough to complete the subgrading of the Parkway. The Parkway could be put in shape for travel for about \$10,000 more.

The excess in cost of construction over the appropriation renders it impossible to construct the Parkway from the intersection of West Street and Farm River to the junction of West and Granite streets in Braintree, authorized by chapter 235 of the General Acts of 1916.

The extension of Furnace Brook Parkway from Quincy Shore Reservation to Hancock Street, under chapter 699 of the Acts of 1912, was completed and opened to travel Nov. 18, 1916.

Chapter 300 of the General Acts of 1915 authorized the Board to construct a new bridge across the Neponset River, between the cities of Boston and Quincy, in place of the so-

called Neponset Bridge. The act itself required that the plans of the bridge should be approved by the mayors of Boston and Quincy. The general law also required that a license should be obtained from the Directors of the Port of Boston, and the United States law that a license should also be obtained from the Secretary of War before the work was begun. The act went into effect May 31, 1915. The Engineering Department of the Board immediately began the preparation of studies and plans of the new bridge and of a temporary bridge to be used during construction, and prosecuted this preliminary work as fast as was possible with the limited force of the Engineering Department and other work of the Board. On Dec. 15, 1915, the plans recommended by the Engineer were approved by the Board, and on Jan. 1, 1916, had received the approvals of the respective mayors of the cities of Boston and Quincy, as required by the act. Within three days thereafter a petition was sent to the Directors of the Port of Boston for their license to construct within tidewaters. This license, however, was not given until May 2, a delay of about four months, and the final license from the War Department was not obtained until July 29, 1916. An examination was immediately begun to determine the boundaries of Neponset Avenue in Boston and of land of private owners near the bridge, in order to enable the Board to determine upon the extent and cost of a taking of so much of the avenue as was necessary for the proper approach to the bridge on the Boston side; and on the completion of the examination the Board made a taking in the latter part of September of so much of the avenue as was necessary for said approach. This was concurred in by the city council of Boston, as required by law, Oct. 17, 1916. The first of November the Board accepted the bid of the Scherzer Rolling Lift Bridge Company to furnish plans and specifications for the construction of the draw-bridge, and ordered bids to be advertised for construction of the bridge and draw and temporary bridge. It is a matter of common knowledge that the cost of labor and material involved in this work, and all other works of construction, has phenomenally increased since the act authorizing this bridge was passed, and it is doubtful whether the appropriation made for the purpose is now adequate.

Nantasket Beach Division.

With the \$6,000 appropriated by chapter 73 of the Resolves of 1916, about 700 feet of concrete sea wall have been built, extending from the northerly end of the roller coaster to the northerly end of the café, with steps at suitable intervals giving access to the beach. This wall not only protects a very exposed part of the Reservation, but will enable the construction of a permanent granolithic promenade in place of plank walks in this section, connecting with the walks around the hotel and to the bath-house. There remains a distance of about 770 feet in front of the café and hotel to be protected and to complete a continuous sea wall from the northerly to the southerly end of the Reservation. It would be wise to construct a part of this each year until the whole is completed.

A contract has been let for the construction of a new sanitary and comfort station for women on the westerly side of Nantasket Avenue, a little south of where the cars now stop.

The bath-house was opened specially on June 13, 19, 24 and 28, and permanently July 1 to September 10, inclusive. There were 41,530 male bathers, including 1,439 boys in the boys' department, and 37,769 female bathers, making a total of 77,860. The capacity of the bath-house has been increased by 178 additional lockers for men and 88 for women. Counting the accommodations for about 200 boys under the piazza of the bath-house, there are total accommodations for about 1,100 bathers at one time. The public use of the bath-house, nevertheless, continues to outstrip any accommodations the Commission can add with the ordinary funds at its disposal. From daily estimates made by the superintendent the past season, 40,000 people were turned away because of the lack of adequate bathing facilities. The Board has repeatedly requested the Legislature to provide money to increase these facilities, but thus far no appropriation has been made. Conditions well warrant a renewal of this request.

The Board has also frequently urged the Legislature to provide money for the widening and reconstruction of Nantasket Avenue. The necessity for this work becomes more and more apparent as time goes on. Much money would be saved in the

cost of annual maintenance if the road were reconstructed upon a permanent and modern base. It would be false economy, however, to do this without at the same time widening the road, putting in sidewalks and putting the overhead wires underground.

The following reports by the Metropolitan Park Commission to the Legislature were authorized, and copies thereof will appear in the Appendix to the report of the Board:—

By chapter 28 of the Resolves of 1916, the Board was directed to investigate the necessity or desirability and practicability of establishing camping grounds in the Metropolitan parks. By chapter 78 of the Resolves of 1916, the Commission was directed to investigate the feasibility, desirability and cost of construction and maintenance of a shelter and shower bath facilities at the Speedway Playground. By chapter 82 of the Resolves of 1916, the Commission was directed to investigate and report on the advisability and cost of acquiring for park purposes land between Main Street, Broadway and Revere Beach Parkway, in the city of Everett. By chapter 87 of the Resolves of 1916, the Commission was directed to make surveys and plans, and to report an estimate of the probable cost of a parkway from the junction of Main and South streets, in Stoneham, to or near Doleful Pond, in said town, thence to the northerly end of Crystal Lake, in the town of Wakefield, and from said lake to Quannapowitt Parkway, in Wakefield. By chapter 143 of the Resolves of 1916, the Commission was directed to investigate and determine the most feasible and desirable route for the extension of the present road in the Charles River Reservation from Brooks Street, in Brighton, to Charlesbank Road, in Newton.

Chapter 109 of the Resolves of 1916 directed the Massachusetts Highway Commission and the Metropolitan Park Commission jointly to investigate the matter of constructing and maintaining a State highway from a point at or near Broadway Park, in the city of Somerville, to the Cambridge line at or near Columbia Street. A copy of this report will also appear in the Appendix to the report of the Board.

Band Concerts, 1916.

Revere Beach (afternoons and evenings of July 4, September 4 (Labor Day); Sundays, Wednesdays and Saturdays from July 5 to September 3, inclusive; Thursdays, afternoons and evenings, August 10 to 31, inclusive; and afternoons of July 13, 20, 27, August 3 and September 7; Friday evenings, July 14 to September 8, inclusive),	80
Nahant Beach (Fridays, afternoons and evenings, June 23, July 7, 14, 21, 28, August 4, 11, 18, 25 and September 1; Sunday afternoons, from July 23 to August 27, inclusive),	26
Nantasket Beach (afternoons and evenings of July 4, September 4 (Labor Day), and of all days, except Mondays, from July 5 to September 3, inclusive),	110
Foot of Great Blue Hill,	8
Fellsmere Park, Malden,	5
Sheepfold, Middlesex Fells,	7
Manchester Field, Winchester,	5
Broadway Park, Somerville,	7
West Somerville Playground,	1
Speedway, Brighton,	5
Charles River Road, Watertown,	4
Fox Island, Waltham,	6
Riverside Recreation Grounds,	7
Boston Embankment,	9
Chelsea Playground,	3
Ell Pond Park, Melrose,	4
Quincy Shore Reservation,	3
Furnace Brook Parkway,	2
Mystic Valley Parkway,	2
Wakefield,	3
Woburn,	3
Stony Brook Reservation,	1
West Roxbury Parkway,	2
Winthrop Shore Reservation,	2
Lowell Memorial Park,	3
Beaver Brook Reservation,	3
Total,	311

In the Secretary's report of last year, attention was called to the amount of work which devolves upon the police department of the Board, and the reduction in the effective strength of the force by days off, vacations and sick leave. It might have been

added as not unworthy of attention that the exigencies of the service prevent the officers from taking their vacations and days off during the summer season, the period which people generally prefer for their vacations, and a period which is available for vacations to at least some proportion of the members of every other police department, as far as known. It was also pointed out that there were men on the force whose ability to perform all kinds of police duty had been curtailed by accidents received in the service, but who were not incapacitated to such an extent that they could be retired at half pay and their places filled by new men; and that the hazards of the service would continue to create a greater proportion of such men as time goes on. It might have been added, also, that another factor constantly operating to reduce the effective strength of this and every police force is increasing age and declining health. These comments are of equal force to-day. Opportunity is taken to touch on this subject again, because the Board will be obliged this year to ask for an increase of the force, and it may be of interest to outline the work involved in policing, and to illustrate the fact that a comparatively small number of men perform the work.

The nominal strength of the police force to-day is 5 captains, 6 lieutenants, 13 sergeants and 136 patrolmen. As to the superior officers, it should be noted that the reservations and parkways under the control of the Board are grouped, for the sake of convenience of administration and policing, into five divisions, each in charge of a captain with the requisite number of police under him, a system analogous to the station and division system in large cities. The captains also act as superintendents of the respective divisions.

During the past year, the one day off in every fifteen allowed each member of the force, as in the Boston police department, vacations and sick leave have reduced the number of effective men available at all times to an equivalent of about 121 men. This is not, however, the whole story. By actual count, there are to-day 10 men on the force who from injuries received in the performance of duty, or from physical weakness, ill health or increasing age, cannot be called on to perform full

active duty as patrolmen. They cannot be safely or reasonably subjected to the inclemencies of weather, or the violent exertions or physical strains which a patrolman is likely to experience sooner or later, as a matter of course, in the pursuit of his calling. On the other hand, these men cannot be retired on a pension, and it would seem somewhat heartless to suspend or discharge men who can still perform some service, and who, at their age, would probably find it difficult to earn a livelihood in any other calling. Such men are therefore assigned such light police duty as can be found for them. Nevertheless, they cannot be reckoned as a part of the effective force available at any time for active duty, emergency calls, riots or strike duty. The active force of the Board, therefore, instead of being the nominal force of 134 patrolmen, is reduced by days off, vacations, ill health, injuries and age to practically 111 patrolmen. In short, the active work of policing the territory under the control of the Board is done with what is equivalent to this small force. Some idea of the magnitude of the field of police work which is covered with this small force may be gathered from the fact that the territory under control of the Board comprises 13 separate reservations and 17 district parkways, and an area amounting altogether to about 16 square miles. There are over 70 miles of roads opened to automobile travel; over 40 miles more of roads opened to horse-drawn vehicles exclusively; and substantially 30 miles in length of rivers, of which Charles River alone, including the Charles River Basin, flowing through the most populated part of the District, forms about half. At two of the reservations, — Revere Beach and Nantasket Beach, — the numbers of the public present are counted at times by the hundred thousand. Illustrations could be multiplied, but this partial summary of territory would seem to be sufficient to demonstrate that the active police force of the Board is a small one for its work, whether compared with the average number of police to each square mile of territory in the cities and towns of the Metropolitan Parks District, or measured by the number of people served. No comparison, however, can fairly be made with the size of any other police force because the work of the ordinary police department consists mainly in patrolling city or town streets, with the inci-

dental work with which every one is familiar. The Metropolitan Park Police, on the other hand, not only are called upon to police streets but also territory much harder to police than city or town streets, and requiring a training and versatility seldom or never called for in ordinary city or town policing. Their work is probably more varied and exacting than that of any other police force in the country. They have to perform duty in boats, or on skates, on the rivers where the work of rescuing the drowning and of keeping the public within the limits of safety requires more vigilance and skill than the ordinary task of keeping the peace. They have to patrol and protect the public scattered through large areas of woods. In fact, the duties of the force are so diversified in character that it has been necessary to specialize in effect some of the fields of work of the force. Take, for instance, the policing of parkways. Probably no roads, outside of a few city streets, are subjected to more automobile travel than some of the parkways under the control of the Commission. In the report of the Secretary for 1915, a table was given showing the automobile travel for a week at certain points. That table showed that at each of two points during the period an average of about 330 automobiles passed each hour during those parts of the day when the public customarily travels. This, of course, means a much larger number during a few hours of the day. Of course the great bulk of this travel occurred in not over 12 hours of the day; but taking the figures as they stand, they show over three automobiles passing a given point in a minute night and day. At four other points, the census showed the rate to be from two to three automobiles a minute, and quite a number of points showed a rate of one or more a minute. When this volume of travel is considered in conjunction with the fact that the excellent surfaces, straightaway courses and the comparative freedom from intersecting streets, which characterize most of these parkways, form an insidious invitation to speed, a glimpse is obtained of the magnitude of this problem of policing the parkways alone. In order to meet this problem fully, it is necessary to police these roads with officers on motor cycles as well as on foot. Now every police officer is not adapted either by weight, age or temperament for

motor cycle service. It is necessary to select and train men for this service. The minimum number of officers doing this work exclusively, not including temporary substitutes during sickness or other absences, is about 25. The services of this corps cannot be dispensed with without imperiling public safety on the parkways. Consequently, these officers are not available for other police work, such as patrolling the beaches or woods, or doing crossing duty. Another instance of the specialization of the work of the police department may be given. While the Charles River Basin is free from ice, which is the larger part of the year, it is necessary to maintain a pretty constant patrol in motor boats to protect the many boats moored in the Basin as far as Watertown Dam from theft of valuable fittings and vandalisms; to rescue persons overturned in boats, and to patrol the race courses on regatta days, a list of which is given in an earlier part of this report. A not unimportant part of this patrol work is the recovery of dead bodies from the water. The Basin is also a part of Boston Harbor, and under the law the duties of harbor master are performed by officers of the Board. This special work of policing the Basin requires the services of at least 5 officers skilled in the handling of motor boats and experienced in the work of a water patrol. In the short period when ice prevents patrolling in boats, these men patrol the ice on skates, a particularly necessary work owing to the many skaters and the treacherous character of the ice in some parts of the Basin. On the Riverside section of the Charles River, about 8 men are required to patrol the river from the Moody Street Dam in Waltham to the Lower Dam in Newton Lower Falls, in boats during the canoeing season and on skates in the skating season. These men must be expert swimmers, prepared to go into the water after drowning persons. Although the Board requires all its officers to learn to swim, not every officer can swim well enough or is physically or otherwise adapted for this work. The men patrolling this section of the river must therefore be a selected corps, trained for special service.

Many sections of Blue Hills Reservation, with its 4,900 acres of area, consisting mostly of wooded and roadless territory, can be best policed only by horsemen. As is the case with motor

cycle duty, a limited part of the entire police force is adapted in weight, age and temperament for mounted duty. An officer cannot be selected at random for this duty. In Blue Hills Division there are about 8 men who do practically no other than mounted duty during the year. In brief, here are 45 men out of the active force of 111 whose work is practically confined to three special and indispensable branches of service, and the performance of this service covers only a comparatively small part of the entire park system. If it is assumed for the moment that the water patrol on Charles River, mounted service in Blue Hills and the motor cycle service on the parkways could be abandoned and the 45 men engaged in these special branches of service dropped from the force, some sort of police protection would still have to be furnished along Charles River, on the parkways and in the woods of Blue Hills, and the problem of policing all the rest of the system would still remain. In other words, even if these 45 men engaged in indispensable duties were left out of the account, the problem still remains of properly policing the system with an active force of not over 66 men. Experience shows that the conditions outlined above have rendered the present police force too small for the proper performance of the work of policing and to give the days off and vacations to which the force is entitled. One more sergeant and 11 more patrolmen are needed under present conditions, and if more days off are given in the future, to conform to the practice in other police departments, even more men will be needed.

During the past year, the Governor has directed the Board to send details of police for service in cities and towns outside the District, in four cases where strikes have existed. In each case this was reluctantly done by the Board, because the men could not be spared from the service of the Board without neglect of the proper policing of the reservations and parkways under the control of the Board. It is a tribute to the personnel of the force that, although the law does not require the members to perform service outside of the Metropolitan Parks District, and they acted practically as volunteers for this service, no protest was received from any one of the men assigned to this duty, although it took them away from their families and

homes for lengthy periods in each case. This fact is all the more impressive when it is considered that there is no law under which a pension could have been granted them if they had been injured in the performance of this voluntary service, and the fact that the Metropolitan Parks District could not have paid their salaries for service outside the District or if the city or town to which they were sent refused or neglected to pay them. The following are the places to which these assignments were made, the number of officers sent, and the periods of service:—

Westfield. — One lieutenant, 2 sergeants and 31 patrolmen; sent January 16, returned January 29.

Westfield. — One lieutenant, 2 sergeants and 31 patrolmen; sent March 9, returned March 17.

Plymouth. — One lieutenant, 2 sergeants and 31 patrolmen; sent February 3, returned February 19.

Pittsfield. — Two lieutenants, 2 sergeants and 48 patrolmen; sent September 11, returned October 3.

3. FINANCES.

Detailed statements of the receipts and expenditures the past year will be inserted in the Appendix to the report.

Loan Appropriations.

The appropriations heretofore made in the form of loans, with accretions thereto, are as follows:—

METROPOLITAN PARKS LOAN FUND.

Original appropriation, chapter 407, Acts of 1893,	. . .	\$1,000,000 00
First Revere Beach Act, chapter 483, Acts of 1894,	. . .	500,000 00
Charles River Act, chapter 509, Acts of 1894,	. . .	300,000 00
Second Revere Beach Act, chapter 305, Acts of 1895,	. . .	500,000 00
General appropriation, chapter 466, Acts of 1896,	. . .	1,000,000 00
General appropriation, chapter 464, Acts of 1897,	. . .	500,000 00
General appropriation, chapter 530, Acts of 1898,	. . .	1,000,000 00
Revere Beach Bath-house Act, chapter 142, Acts of 1899,	. . .	125,000 00
General appropriation, chapter 396, Acts of 1899,	. . .	300,000 00
Charles River Improvement Act, chapter 465, Acts of 1900,	. . .	50,000 00
Fuller's Wharf Act, chapter 467, Acts of 1900,	. . .	30,000 00
General appropriation, chapter 445, Acts of 1901,	. . .	450,000 00
Mystic River Bridge Act, chapter 492, Acts of 1901,	. . .	200,000 00

General appropriation, chapter 290, Acts of 1903, . . .	\$125,000 00
Newton Upper Falls Bridge Act, chapter 391, Acts of 1903, . . .	40,000 00
Continuing appropriation, chapter 429, Acts of 1903, for 1903,	300,000 00
For 1904,	300,000 00
For 1905,	300,000 00
For 1906,	300,000 00
For 1907,	300,000 00
Nahant Beach Bath-house Act, chapter 326, Acts of 1904, . . .	70,000 00
Reimbursing loan for moth expense, chapter 486, Acts of 1906,	50,000 00
Purification of Mystic River, Alewife Brook and adjacent water-courses, ponds and drainage areas, chapter 529, Acts of 1906,	100,000 00
Additional appropriation for purification of Mystic River, etc., chapter 529, Acts of 1907,	25,000 00
Mystic River and Winthrop Shore Act, chapter 652, Acts of 1908,	70,000 00
Charles River Land Act, chapter 628, Acts of 1910, and chapter 439 of 1911,	99,554 95
Alewife Brook Purification Act, chapter 458, Acts of 1911, . . .	15,000 00
Work for unemployed, chapter 4, Special Acts of 1915, . . .	50,000 00
Weston Bridge Act, chapter 368, Special Acts of 1915, . . .	50,000 00
	<hr/>
	\$8,149,554 95
To provide for interest and sinking fund requirements to 1900, chapter 311, Acts of 1897,	900,000 00
	<hr/>
Total amount of loans,	\$9,049,554 95
Amounts received from sales of buildings, receipts from bath-house, fines, etc.,	198,942 81
	<hr/>
Total,	\$9,248,497 76

METROPOLITAN PARKS LOAN FUND, SERIES II.

Original boulevard, chapter 288, Acts of 1894, . . .	\$500,000 00
General appropriation, chapter 472, Acts of 1896, . . .	500,000 00
General appropriation, chapter 521, Acts of 1897, . . .	1,000,000 00
Saugus Bridge Act, chapter 547, Acts of 1898, . . .	100,000 00
General appropriation, chapter 428, Acts of 1899, . . .	500,000 00
Mattapan Bridge Act, chapter 443, Acts of 1900, . . .	75,000 00
Winchester Act, chapter 444, Acts of 1900, . . .	50,000 00
Revere Beach Parkway Act, chapter 445, Acts of 1900, . . .	200,000 00
General appropriation, chapter 172, Acts of 1902, . . .	450,000 00

General appropriation, chapter 359, Acts of 1903, . . .	\$110,000 00
Continuing appropriation, chapter 419, Acts of 1903, for 1903,	300,000 00
For 1904,	300,000 00
For 1905,	300,000 00
For 1906,	300,000 00
For 1907,	300,000 00
Alewife Brook and Fresh Pond Parkway Act, chapter 651, Acts of 1908,	50,000 00
Continuing appropriation, chapter 699, Acts of 1912, for 1913,	200,000 00
For 1914,	200,000 00
For 1915,	200,000 00
For 1916,	200,000 00
Wellington Bridge Act, chapter 794, Acts of 1914, . . .	115,000 00
Work for unemployed, chapter 5, Special Acts of 1915, . .	50,000 00
Alewife Brook Parkway construction, chapter 243, General Acts of 1915,	35,000 00
Neponset Bridge Act, chapter 300, General Acts of 1915, .	350,000 00
Wellington Bridge Act, chapter 178, General Acts of 1916, .	11,000 00
Improvement of lands in Arlington, chapter 186, General Acts of 1916,	20,000 00
Parkway connecting Blue Hills Reservation and Granite Street, Braintree, chapter 235, General Acts of 1916, . .	10,000 00
Construction of Dedham Parkway, chapter 237, General Acts of 1916,	10,000 00
	<hr/>
	\$6,436,000 00
To provide for interest and sinking fund requirements to 1900, chapter 311, Acts of 1897,	100,000 00
	<hr/>
Total amount of loans,	\$6,536,000 00
Receipts from sales, etc.,	29,914 16
	<hr/>
Total,	\$6,565,914 16

NANTASKET BEACH LOAN.

Appropriation, chapter 464, Acts of 1899,	\$600,000 00
Appropriation, chapter 456, Acts of 1901,	100,000 00
	<hr/>
Total amount of loans,	\$700,000 00
Receipts from rents, etc.,	5,881 50
	<hr/>
Total,	\$705,881 50

CHARLES RIVER BASIN LOAN.

Bonds issued for 1904,	\$250,000 00
Bonds issued for 1905,	400,000 00
Bonds issued for 1906,	600,000 00
Bonds issued for 1907,	1,150,000 00
Bonds issued for 1908,	400,000 00
Bonds issued for 1909,	850,000 00
Bonds issued for 1910,	475,000 00
Bonds issued for 1911,	300,000 00
Appropriation, chapter 539, Acts of 1913,	40,000 00
Driveway, Brooks Street to Charlesbank Road, chapter 188, General Acts of 1915,	35,000 00
Total amount of bonds,	\$4,500,000 00
Receipts added to loan,	9,368 91
Total,	\$4,509,368 91

Expenditures from Loans.

The following tables show the total amount expended in each of the foregoing loans, the total cost of each reservation and parkway to Dec. 1, 1916, and the amount charged by the Auditor's department to meet the sinking fund and interest requirements previous to Jan. 1, 1900. The item of "Miscellaneous" in these tables includes cost of construction of roads, buildings and of all other work of construction, and all other charges against these loans except those for land, general expenses, sinking fund and cost of maintenance required by law to be charged to loans up to 1897. The total charges for maintenance to 1897, general expenses and sinking fund are given separately at the end of the tables. The total amounts charged to those loans are as follows:—

METROPOLITAN PARKS LOAN FUND.

Land,	\$5,392,748 66
Miscellaneous, including construction of roads, buildings, etc.,	3,383,863 37
General expense,	163,371 12
Maintenance to Jan. 1, 1897, sinking fund assessments to Jan. 1, 1900, and interest,	290,326 56
Transfer to Serial Bond Loan,	3,601 10
	<hr/>
	\$9,233,910 81

METROPOLITAN PARKS LOAN FUND, SERIES II.

Land,	\$2,109,827 77
Miscellaneous, including construction of roads, buildings, etc.,	3,720,830 10
General expense,	107,090 19
Sinking fund assessments to Jan. 1, 1900, and one-half interest,	59,195 89
	<hr/>
	\$5,996,943 95

NANTASKET BEACH LOAN.

Land,	\$603,329 57
Miscellaneous, including construction of buildings, etc., .	102,551 93
	<hr/>
	\$705,881 50

The amounts expended from these loans for the fiscal year ending Nov. 30, 1916, are stated in tables in the financial statement.

METROPOLITAN PARKS LOAN FUND.

Blue Hills Reservation:—

Land,	\$363,357 29
Miscellaneous,	307,058 66
	<hr/>
	\$670,415 95

Middlesex Fells Reservation:—

Land,	\$691,112 69
Miscellaneous,	294,557 47
	<hr/>
	985,670 16

Revere Beach Reservation:—

Land,	\$1,162,947 67
Miscellaneous,	800,999 04
	<hr/>
	1,963,946 71

Stony Brook Reservation:—

Land,	\$281,243 87
Miscellaneous,	76,810 67
	<hr/>
	358,054 54

Beaver Brook Reservation:—

Land,	\$29,819 29
Miscellaneous,	24,437 35
	<hr/>
	54,256 64

Hemlock Gorge Reservation:—

Land,	\$53,254 00
Miscellaneous,	15,543 94
	<hr/>
	68,797 94

Charles River Reservation:—

Land,	\$1,569,391 51	
Miscellaneous,	340,471 43	
	<hr/>	\$1,909,862 94

Neponset River Reservation:—

Land,	\$233,473 04	
Miscellaneous,	46,418 97	
	<hr/>	279,892 01

Mystic River Reservation:—

Land,	\$242,883 21	
Miscellaneous,	380,815 51	
	<hr/>	623,698 72

Lynn Shore Reservation:—

Land,	\$361,199 29	
Miscellaneous,	243,580 01	
	<hr/>	604,779 30

Quincy Shore Reservation:—

Land,	\$73,726 26	
Miscellaneous,	198,160 63	
	<hr/>	271,886 89

Winthrop Shore Reservation:—

Land,	\$51,067 32	
Miscellaneous,	170,560 99	
	<hr/>	221,628 31

Hart's Hill Reservation:—

Land,	\$10,000 00	
Miscellaneous,	202 35	
	<hr/>	10,202 35

King's Beach Reservation:—

Land,	\$24,297 21	
Miscellaneous,	1,551 63	
	<hr/>	25,848 84

West Roxbury Parkway:—

Land,	\$244,976 01	
Miscellaneous,	8,313 67	
	<hr/>	253,289 68

Wellington Bridge:—

Miscellaneous,	\$185,317 42	
	<hr/>	185,317 42

Nahant Beach Bath-house:—

Miscellaneous,	\$67,794 58	
	<hr/>	67,794 58

Boylston Street Bridge:—

Miscellaneous,	\$45,838 57	
	<hr/>	\$45,838 57

Alewife Brook Purification:—

Miscellaneous,	\$136,398 90	
	<hr/>	136,398 90

Weston Bridge:—

Miscellaneous,	\$39,031 68	
	<hr/>	39,031 68

General expense,		163,371 12
		<hr/>
		\$8,939,983 25

Sinking fund requirements to 1896, . . . \$18,980 18

Care and maintenance to July 1, 1896, . . . 85,813 46

Care and maintenance, July 1, 1896, to Jan.
1, 1897, 19,604 06

Sinking fund assessment for 1897, . . . 63,630 70

Sinking fund assessment for 1898, . . . 9,755 55

Sinking fund assessment for 1899, . . . 64,224 00

Interest, 28,318 61

Transfer to Serial Bond Loan (unexpended
balance Alewife Brook purification appro-
priation), 3,601 10

293,927 66

Total charged to Dec. 1, 1916, . . . \$9,233,910 91

Balance Dec. 1, 1916, 14,586 85

\$9,248,497 76

METROPOLITAN PARKS LOAN FUND, SERIES II.

Blue Hills Parkway:—

Land,	\$133,492 02	
Miscellaneous,	269,513 47	
	<hr/>	\$403,005 49

Middlesex Fells Parkway:—

Land,	\$263,687 60	
Miscellaneous,	613,667 39	
	<hr/>	877,354 99

Mystic Valley Parkway:—

Land,	\$203,990 91	
Miscellaneous,	387,260 25	
	<hr/>	591,251 16

Revere Beach Parkway:—

Land, \$537,445 51

Miscellaneous, 869,565 65

\$1,407,011 16

Neponset River Parkway:—

Land, \$83,941 75

Miscellaneous, 36,100 54

120,042 29

Fresh Pond Parkway:—

Land, \$44,086 25

Miscellaneous, 31,561 44

75,647 69

Furnace Brook Parkway:—

Land, \$166,397 77

Miscellaneous, 239,727 84

406,125 61

Nahant Beach Parkway:—

Land, \$80,940 78

Miscellaneous, 76,014 13

156,954 91

Lynn Fells Parkway:—

Land, \$40,468 46

Miscellaneous, 126,373 84

166,842 30

Winthrop Parkway:—

Land, \$98,020 88

Miscellaneous, 48,723 38

146,744 26

Alewife Brook Parkway:—

Land, \$144,497 74

Miscellaneous, 38,936 82

183,434 56

Charles River Speedway:—

Miscellaneous, \$521,348 66

521,348 66

Blue Hills Roads:—

Miscellaneous, \$8,742 06

8,742 06

Middlesex Fells Roads:—

Miscellaneous, \$61,483 68

61,483 68

Stony Brook Roads:—

Miscellaneous, \$37,183 45

37,183 45

Lynnway:—

Land, \$20,500 00

Miscellaneous, 124,368 29

\$144,868 29

Spy Pond Parkway:—

Miscellaneous, \$89 04

89 04

Old Colony Parkway:—

Land, \$184,399 37

Miscellaneous, 28,453 52

212,852 89

Woburn Parkway:—

Land, \$3,958 75

Miscellaneous, 52,038 32

55,997 07

Dedham Parkway:—

Land, \$10,212 01

Miscellaneous, 22,019 50

32,231 51

Hammond Pond Parkway:—

Land, \$87,162 97

Miscellaneous, 5,309 57

92,472 54

Quannapowitt Parkway:—

Land, \$6,625 00

Miscellaneous, 1,784 11

8,409 11

West Roxbury Parkway:—

Miscellaneous, \$199 42

199 42

Vose's Grove:—

Miscellaneous, \$980 08

980 08

Wellington Bridge:—

Miscellaneous, \$112,969 16

112,969 16

Neponset Bridge:—

Miscellaneous, \$2,364 73

2,364 73

Arlington Parkway:—

Miscellaneous, \$4,035 12

4,035 12

West Street, Braintree:—

Miscellaneous, 16 64

16 64

General expense,

107,090 19

\$5,937,748 06

Sinking fund requirements for 1896, . . .	\$3,650 03	
Sinking fund requirements for 1897, . . .	14,057 10	
Sinking fund requirements for 1898, . . .	3,765 08	
Sinking fund requirements for 1899, . . .	15,396 00	
One-half interest,	22,327 68	
		\$59,195 89
Total charged to Dec. 1, 1916,	\$5,996,943 95	
Balance Dec. 1, 1916,	568,970 21	
		\$6,565,914 16

NANTASKET BEACH LOAN.

Land,	\$603,329 57	
Miscellaneous,	102,551 93	
Total charged to Dec. 1, 1916,	\$705,881 50	

CHARLES RIVER BASIN LOAN.

Expended from beginning of work to Dec. 1, 1916, . . .	\$4,453,225 75
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The above amount has been distributed as follows: —

Administration,	\$108,060 16	
Dam,	1,118,720 27	
Lock,	724,142 64	
Temporary bridge and approaches, . . .	184,895 36	
Drawbridge,	100,371 06	
Highway,	55,557 85	
Dredging, pile-driving and protection work in Basin,	179,881 35	
Broad Canal,	117,251 64	
Lechmere Canal,	53,388 87	
Boston Embankment,	895,013 92	
Boston Marginal Conduit,	635,511 96	
Cambridge Marginal Conduit,	99,472 48	
Elimination of malarial mosquitoes, . . .	1,173 68	
Landing piers,	7,667 99	
Float anchorage,	23 90	
Police signal system,	9,847 56	
Improvement of south bank and driveway, .	31,245 93	
Service shed,	12,924 78	
Morgue,	37 08	
Otter Street widening,	29,328 76	
Maintenance,	88,708 51	
		\$4,453,225 75

Respectfully submitted,

GEO. LYMAN ROGERS,

DEC. 1, 1916.

Secretary.

REPORT OF THE ENGINEER.

HON. WILLIAM B. DE LAS CASAS, *Chairman, Metropolitan Park Commission.*

SIR: — I submit herewith the report of the Engineer for the year ending Nov. 30, 1916, as follows: —

The work of the Engineering Department has consisted of the usual preliminary work for the preparation of plans and specifications for all new construction, the direction and supervision of all construction work, which is usually done by contract, and the supervision of the work of reconstruction, repair and maintenance of roadways and structures done by the forces of the various divisions.

The most important construction work accomplished during the year has been the finishing of Furnace Brook Parkway from Hancock Street to Quincy Shore Reservation, Quincy, begun last year; the finishing of the dredging of Aberjona River, Winchester, also begun last year; the construction of two reinforced concrete bridges over the Charles River, one at North Beacon Street, Boston and Watertown, and one at Commonwealth Avenue, Newton and Weston, known as "Weston Bridge;" the construction of a section of Alewife Brook Parkway from Massachusetts Avenue, Cambridge, to Powder House Boulevard, Somerville; the construction of additional concrete shore protection works at Revere Beach Reservation and Nantasket Beach Reservation; the dredging of the Charles River from Elm Street to Bleachery Dam, Waltham; and the extension of the Mystic Valley Parkway from Medford Street to Mystic Street, Arlington.

Preliminary work has been done in the preparation of plans, specifications and estimates for proposed work and for reports to the next Legislature on contemplated extensions of parkways, included in which are a boulevard from Middlesex Fells Parkway at Broadway Park, Somerville, to a point near the Cam-

bridge-Somerville line; a parkway from Middlesex Fells Reservation, Stoneham, to Lake Quannapowitt, Wakefield; an extension to Newton of the drive along the easterly side of the Charles River; and a locker building with shower baths at the Speedway Playground, Brighton. The most important proposed work is the construction of a new bridge over the Neponset River at Neponset, Boston and Quincy, for which \$350,000 has been appropriated.

The care and operation of the locks, gates and drawbridges at the Charles River Dam, Cradock Bridge Dam, Mystic River, Medford, and Wellington Bridge, Mystic River, and the maintenance of the channels of the Charles River have been under the direction of this department.

The roadway surfaces of the park system have been maintained generally by the surface application of bituminous binders, with some resurfacing and reconstruction, where defects in subgrade had appeared.

The cost of conducting the department has been as follows: —

Engineering: —		
Construction: —		
Services,	. . . . .	\$21,685 05
Expenses,	. . . . .	2,103 69
		<hr/>
		\$23,788 74
Maintenance: —		
Services,	. . . . .	\$11,746 56
Expenses,	. . . . .	1,895 85
		<hr/>
		13,642 41
Total,	. . . . .	<hr/>
		\$37,431 15

Details of the work done under the direction and supervision of this department are given under the following sections of parkway and reservation and in the tables appended.

CONSTRUCTION.

Parkways.

Alewife Brook Parkway. — The portion of this parkway from Massachusetts Avenue, Cambridge, to Powder House Boulevard, Somerville, has been constructed. On account of the narrow limits between the cemetery and the Boston Elevated Railway Company's car barns there was insufficient space for

the construction of the channel of the brook and the Parkway side by side. A further encroachment upon the cemetery was not feasible, and the estimated cost of acquiring a portion of the railway company's property was prohibitive. The method which was devised to overcome this difficulty was to keep the grade of the Parkway at an elevation of 10 feet above the water of the brook and construct a retaining wall with an overhang of about 6 feet, which formed the sidewalk of the Parkway. By this method and by eliminating the planting space through this narrow section, it was possible to provide a roadway 26 feet and sidewalk 6 feet in width. On March 27, 1916, the following proposals were received for the work:—

Daddario & Booth, Mattapan,	\$43,517 25
Alco Contracting Company, Boston,	38,202 00
Thomas Russo & Co., Boston,	35,030 50
Perini Construction Company, Ashland,	34,034 00
A. Williams & Co., Boston,	31,442 00
Middlesex Construction Company, Boston,	30,970 50
Coleman Brothers, Chelsea,	29,316 00
Rowe Contracting Company, Boston,	28,008 50
James H. Fannon, Somerville,	27,595 50
Kelley & Sullivan, Somerville,	25,607 75

The contract was awarded to Kelley & Sullivan, the lowest bidders, the work was begun on April 5, 1916, and completed on Nov. 15, 1916. The Parkway was opened to public travel on Dec. 2, 1916.

The total cost of this work, as certified by this department, has been as follows:—

Contract No. 189:—

Year ending Nov. 30, 1915:—

Engineering services, preliminary,	\$197 19
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Year ending Nov. 30, 1916:—

Contract estimates,	\$30,105 71
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Additional labor and materials,	2,375 57
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Engineering services:—

Preliminary,	\$309 23
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Actual,	1,809 45
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	2,118 68
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Engineering expenses,	359 79
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	34,959 75
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Total,	\$35,156 94
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ALEWIFE BROOK PARKWAY.

The portion of Powder House Boulevard between its junction with Alewife Brook Parkway and Mystic Valley Parkway, a distance of about one-half mile, and which forms the connecting link between these two parkways, has been transferred by the city of Somerville to this Commission for care and control.

A small dredging plant has been purchased for use in keeping the channels of Alewife Brook clear. This plant consists of two scows 30 by 8 feet, A-frame derrick and all necessary rigging, one 7 by 10 inch double drum hoisting engine and boiler, one swinging engine and a one-half yard "Fogarty" bucket. This equipment is as light as practical, as it will be necessary to dismantle it often to move it across the streets and railroad crossing the brook, the bridges for which are generally too small to allow the passage of the plant assembled. The cost of the whole equipment was \$2,989.38.

An investigation of the sources of pollution of Tannery Brook, a tributary of Alewife Brook, has been made by this department, and the conclusion reached is that the chief pollution is from the Muller Tannery. Above the tannery the water is not offensive in appearance or odor; below the tannery the water is highly colored, offensive in odor and has the appearance of an open sewer with a large amount of filth floating on the surface. This condition of Tannery Brook causes a large proportion of the pollution of Alewife Brook.

Dedham Parkway. — Surveys and plans have been made for taking additional land for the completion of the Parkway at the Dedham end.

The work of grading this Parkway, from Stony Brook Reservation to a point about 400 feet from the new bridge built by the town of Dedham over Mother Brook, is practically completed. The uncompleted portion is that for which the land has not yet been acquired.

Furnace Brook Parkway. — The work of building this Parkway from Quincy Shore Reservation to Hancock Street, which was begun in April, 1915, by John Cashman & Sons Company, contractors, was completed July 24, 1916. This section of Parkway is about $1\frac{3}{4}$ miles in length, and the work consisted

mainly of about 30,000 cubic yards of earth grading and the furnishing of about 110,000 cubic yards of filling material.

The work of building the stone and concrete masonry bridge for this Parkway over Black's Creek, which was begun in October, 1915, by the Hugh Nawn Contracting Company, contractors, was completed Aug. 25, 1916.

During this year, after the completion of the work under contract, considerable work was done by the forces of the Blue Hills Division, under the direction and supervision of this department, to prepare this section for use by the public. A reinforced concrete culvert for Furnace Brook and permanent pipe culverts were built, the subgrade material was shaped up, raked and rolled to form a roadway surface, and then treated with bituminous binder, and fences were built where necessary. The Parkway was opened to public travel on Nov. 18, 1916.

The total cost of this work, as certified by this department, has been as follows:—

Contract No. 175, construction of parkway:—

Previously reported:—

Contract estimates, . . .	\$43,086 01	
Engineering services:—		
Preliminary, . . .	\$617 56	
Actual, . . .	1,965 34	
	<hr/>	2,582 90
Engineering expenses, . . .	433 81	
	<hr/>	\$46,102 72

Year ending Nov. 30, 1916:—

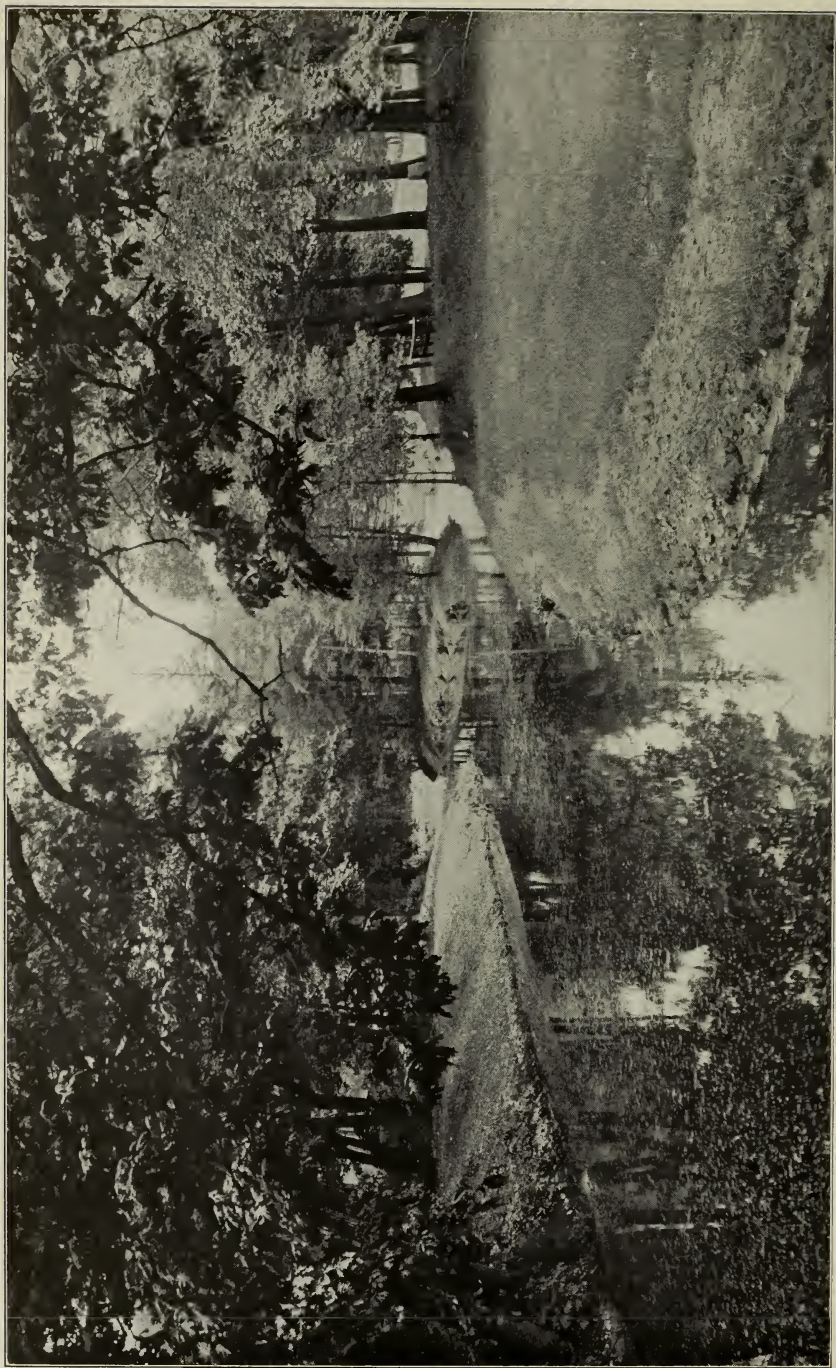
Contract estimates, . . .	\$21,324 35	
Additional labor and materials,	269 62	
Engineering services, actual, . . .	1,076 38	
Engineering expenses, . . .	52 64	
	<hr/>	22,722 99

Total,	<hr/>	\$68,825 71
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Contract No. 180, construction of bridge:—

Previously reported:—

Contract estimates, . . .	\$4,200 00	
Engineering services:—		
Preliminary, . . .	\$257 06	
Actual, . . .	349 97	
	<hr/>	607 03
Engineering expenses, . . .	368 08	
	<hr/>	\$5,175 11



MYSTIC VALLEY PARKWAY. — Aberjona River after Improvement.

Year ending Nov. 30, 1916: —

Contract estimates, . . .	\$19,718 00	
Additional labor and materials,	275 64	
Engineering services, actual,	766 81	
Engineering expenses,	82 75	
	<hr/>	\$20,843 20
Total,	<hr/>	\$26,018 31

Surfacing and finishing parkway: —

Labor and materials,	\$11,774 95	
Engineering services,	760 42	
Engineering expenses,	81 63	
Total,	<hr/>	12,617 00
Grand total,		<hr/> \$107,461 02

Mystic Valley Parkway. — The work of dredging the channel of Aberjona River, Winchester, by Coleman Brothers, contractors, was begun Aug. 30, 1915, and completed July 13, 1916. The channel, 40 feet in width at the water line, and with a normal depth of water of 5 feet, was excavated from Waterfield Street to Wedgemere Pond, and through the pond to the railroad bridge. It was proposed to excavate to a greater width in the pond and use the material to fill the shallow portions to raise them above the normal water level. As the funds available for this work were not sufficient, this work in the pond was not completed. About \$5,000 additional will be required to complete the work.

The total cost of this work, as certified by this department, has been as follows: —

Changes in drainage at Waterfield Road, \$1,000

Contract No. 178: —

Previously reported: —

Contract estimates, . . .	\$2,970 00	
Engineering services: —		
Preliminary, . . .	\$188 77	
Actual, . . .	230 80	
	<hr/>	419 57
Engineering expenses, . . .	191 03	

3,580 60

Year ending Nov. 30, 1916:—

Contract estimates, . . .	\$9,903 05	
Engineering services, actual, . . .	662 02	
Engineering expenses, . . .	32 72	
	<hr/>	\$10,597 79
Total,	<hr/>	\$14,178 39
Grand total,		<hr/> \$15,178 39

Plans and specifications have been prepared for building an extension of Mystic Valley Parkway from Medford Street around the southerly side of Lower Mystic Lake to Mystic Street, Arlington. On Sept. 18, 1916, the following bids were received:—

Frank Drinkwater, Roslindale,	\$66,500 00
Hugh Nawn Contracting Company, Roxbury,	27,350 00
Michael D. Russo, Boston,	26,750 00
A. G. Tomasello, Dorchester,	21,090 00
John P. Cavanagh Company, South Boston,	17,750 00
Coleman Brothers, Chelsea,	16,200 00
Fred E. Ellis, Melrose,	13,600 00
James H. Fannon, Somerville,	12,950 00

The contract was awarded to James H. Fannon, the lowest bidder, and the work was begun on Oct. 2, 1916, and is now in progress.

The cost of the work to Dec. 1, 1916, as certified by this department, has been as follows:—

Contract No. 192:—

Contract estimates,	\$6,515 95	
Engineering services:—		
Preliminary,	\$314 51	
Actual,	472 41	
	<hr/>	786 92
Engineering expenses,	262 61	
Total,	<hr/>	\$7,565 48

Nahant Beach Parkway.—At the rear of the Nahant Bath-house in Lynn Harbor an area about 600 by 400 feet was enclosed in a temporary wooden bulkhead and partially filled with material excavated from the channels of the harbor for a playground. Early in this year the Board of Harbor and Land Commissioners contracted for further dredging in Lynn Harbor;

the work was done by hydraulic dredgers and the material deposited in this playground area, completely filling it.

This filling made necessary the extension of the surface drainage system of this section. This work was done between April 24 and July 21, 1916, by the Rowe Contracting Company, and the total cost has been \$3,700.50.

Petition has been made to the Commission on Waterways and Public Lands for license to fill slopes outside bulkheads, which is the next step toward the completion of this proposed playground and public landing.

Additional parking space for automobiles, with cement concrete surface, has been built at the southerly end of the beach, near Little Nahant. The work was done by the forces of the Revere Beach Division, under the supervision of this department.

Old Colony Parkway. — The work of preparing plans and specifications for the construction of Neponset Bridge, Boston and Quincy, is in progress and nearly completed. It is expected to call for bids for this work about the first of next year.

The proposed bridge will be built of reinforced concrete girders on stone masonry piers, with double leaf Scherzer rolling lift draw at the channel. The bridge is to be 60 feet in width, with roadway 48 feet and two sidewalks each 6 feet in width. A temporary wooden bridge with steel draw span will be built for use during the construction of the permanent structure, which is on the site of the present bridge.

Reservations.

Charles River Reservation, Lower Basin Section. — Otter Street, the entrance to the Charles River Embankment from Beacon Street, has been under the care and control of the city of Boston. It was 40 feet in width, with a roadway of only 28 feet. The street has been transferred to this Commission, and a strip of land on the southerly side, about 10 feet in width, which was unoccupied by buildings, has been acquired for widening. On Nov. 1, 1916, the following bids were received for the work of rebuilding the street to the additional width, which is 50 feet, with a roadway of about 38 feet: —

Hugh Nawn Contracting Company, Roxbury,	\$2,943 00
Coleman Brothers, Chelsea,	2,655 50

The work has been done by Coleman Brothers and is nearly completed.

The cost of the work to Dec. 1, 1916, as certified by this department, has been as follows:—

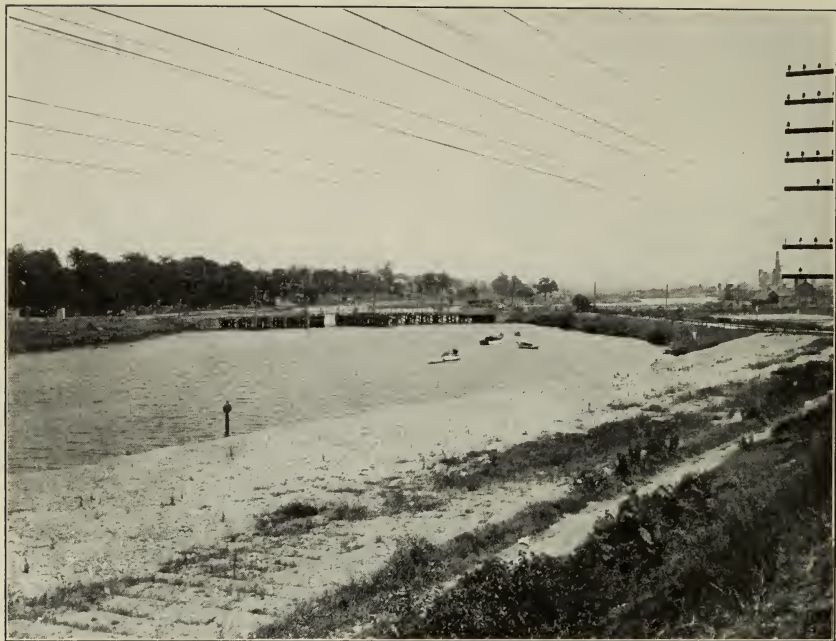
Contract No. 194:—	
Contract estimates,	\$776 00
Engineering services:—	
Preliminary,	\$65 64
Actual,	128 32
	<hr/>
	193 96
Engineering expenses,	3 19
Total,	<hr/>
	\$973 15

There is considerable need for the construction of a small mortuary in the vicinity of the police station at Charles River Dam, in which to keep bodies recovered from the Basin until taken by the medical examiner. Plans have been prepared and approved by the Commission for such a building, to be located at the rear of the lock gate house.

Charles River Reservation, Upper Division.—The work of constructing a three-arch reinforced concrete bridge 75 feet in width over the Charles River at North Beacon Street, Boston and Watertown, under contract with A. G. Tomasello, was begun as soon as the weather conditions would allow in the spring and has progressed during the year. The concrete work is nearly completed, but the grading and surfacing on the bridge and approaches will probably not be permanently completed until next spring.

The cost of the work to Dec. 1, 1916, as certified by this department, has been as follows:—

Contract No. 186, bridge and approaches:—	
Year ending Nov. 30, 1914:—	
Engineering services, prelim-	
inary,	\$176 21
Engineering expenses,	5 07
	<hr/>
	\$181 28



CHARLES RIVER BASIN. — North Beacon Street Bridge (Old).



CHARLES RIVER BASIN. — North Beacon Street Bridge (New).

Year ending Nov. 30, 1915:—

Engineering services:—

Preliminary, \$1,471 47

Actual, 4 90

\$1,476 37

Engineering expenses, . . 467 04

\$1,943 41

Year ending Nov. 30, 1916:—

Contract estimates, . . \$92,336 59

Additional labor and materials, 266 18

Engineering services:—

Preliminary, . \$21 92

Actual, . . 3,444 80

3,466 72

Engineering expenses, . . 344 23

96,413 72

Total, \$98,538 41

Contract No. 188, filling material:—

Contract estimates, \$3,705 00

Engineering services:—

Preliminary, \$3 75

Actual, 104 91

108 66

Engineering expenses, 16 68

Total, 3,830 34

Grand total, \$102,368 75

Plans and specifications have been prepared for the construction of a three-arch reinforced concrete bridge over the Charles River at the site of the old Weston Bridge, Commonwealth Avenue, Newton and Weston. An unusual feature in the design of this bridge is the overhanging sidewalks, which project beyond the face of the spandrel walls 8.5 feet. The objectionable appearance from an architectural point of view of this excessive overhang on a small arch bridge has been overcome entirely by the treatment of the faces of the bridge and the placing of large circular bastions at the abutments. The advantage of this scheme is in the economy in cofferdams, abutments and piers, which are reduced from 60 to 44 feet in length. On April 11, 1916, the following bids were received for the construction of the bridge and approaches:—

James J. Coughlan & Co., Boston,	\$60,438 75
The T. A. Gillespie Company, Boston,	59,737 50
Coleman Brothers, Chelsea,	59,514 00
Hugh Nawn Contracting Company, Roxbury,	57,378 75
P. McGovern & Co., Boston,	56,852 00
Rowe Contracting Company, Boston,	53,404 50
T. Stuart & Son Company, Newton,	51,131 25

The contract was awarded to T. Stuart & Son Company, the lowest bidder, and the work was begun on May 17, 1916, and is now practically completed.

During the construction of this bridge it was necessary to close the road to public traffic, as the new structure was on the same location as the old. It was deemed unnecessary to go to the expense of building a temporary bridge, as the detour, by way of Riverside, was short. The new bridge was opened to public traffic on Nov. 24, 1916, although the roadway surfaces of the approaches were only temporary. The permanent surfacing of the approaches is postponed until spring to allow the settlement of the fills.

The cost of this work to Dec. 1, 1916, as certified by this department, has been as follows:—

Contract No. 190:—

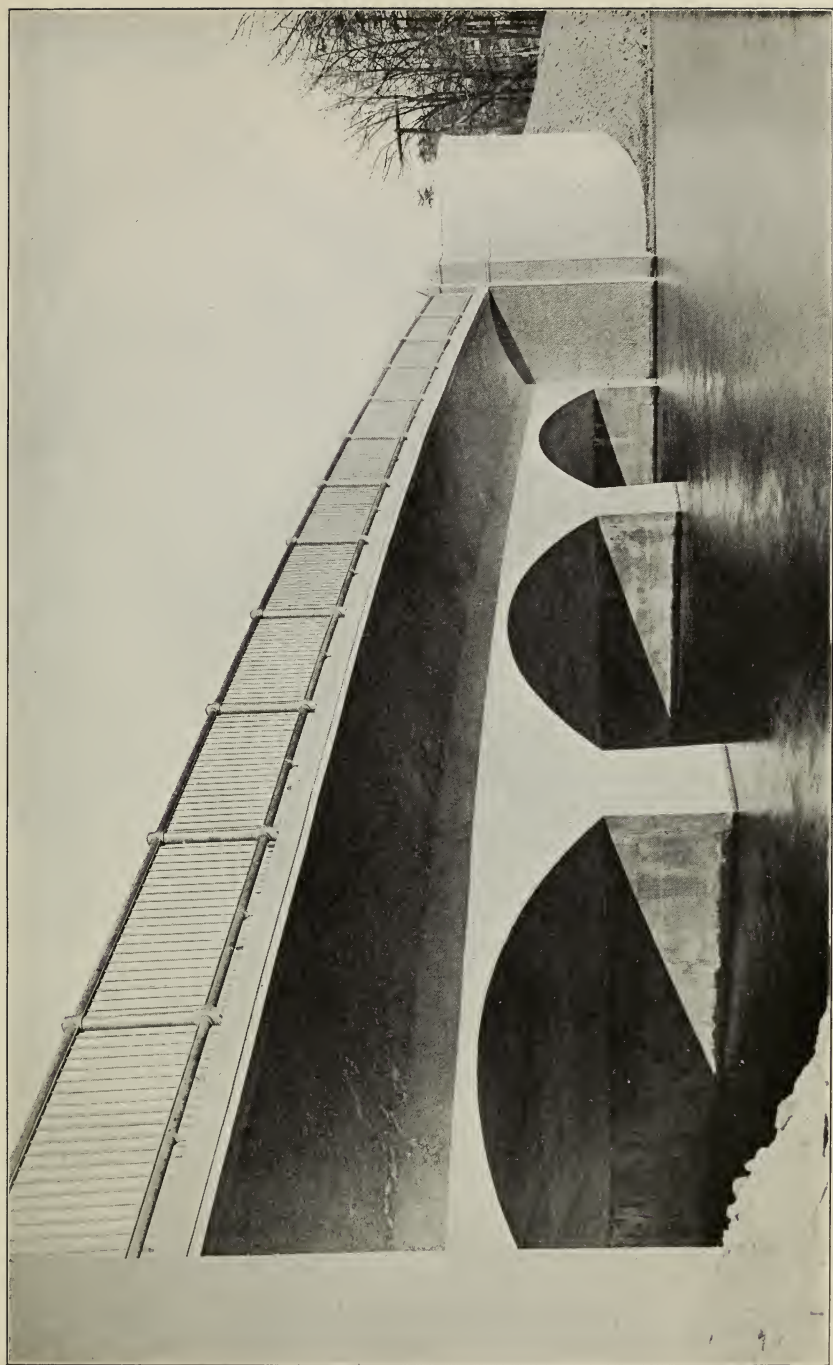
Year ending Nov. 30, 1915:—

Engineering services, preliminary,	\$227 74	
Engineering expenses,	111 76	
	<hr/>	\$339 50

Year ending Nov. 30, 1916:—

Contract estimates,	\$49,923 08	
Additional labor and materials,	579 83	
Engineering services:—		
Preliminary,	\$1,112 21	
Actual,	1,917 44	
	<hr/>	3,029 65
Engineering expenses,	318 34	
	<hr/>	53,850 90
Total,		<hr/> \$54,190 40

The work of dredging the Charles River from Elm Street to Bleachery Dam, for the sanitary improvement of this section,



CHARLES RIVER RESERVATION. — The New Weston Bridge.

which was under contract with John R. Burke, was begun on Dec. 4, 1915, and completed on Sept. 16, 1916. The contract was awarded in October last year, but it was necessary to construct a special dredging plant in the river to do the work. The length of the section of the river dredged is about one-half mile, and the width varies from 120 to 200 feet. A total of 18,917 cubic yards of material were excavated and deposited on the low lands bordering the river.

The total cost of this work, as certified by this department, has been as follows: —

Contract No. 184: —

Year ending Nov. 30, 1915: —

Engineering services: —

Preliminary, \$93 09

Actual, 215 08

\$308 17

Engineering expenses, 168 72

\$476 89

Year ending Nov. 30, 1916: —

Contract estimates, \$17,781 98

Engineering services, actual, . . . 837 54

Engineering expenses, 57 65

18,677 17

Total, \$19,154 06

Nantasket Beach Reservation. — Plans and specifications have been prepared for the construction of about 850 feet of concrete bulkhead and retaining walls at the northerly end of the Reservation. The walls are of the same type and design as those built last year at the southerly end, with the addition of five flights of reinforced concrete steps leading to the beach.

The work was done by the Hugh Nawn Contracting Company, the same contractor who did the work last year. Work was begun Oct. 25, 1916, and completed Dec. 2, 1916. The total cost of the work, exclusive of engineering and inspection, was \$7,331.66.

Revere Beach Reservation. — In connection with the work of building new boiler house and plant at the rear of bath-house,

a brick chimney 125 feet in height was constructed under the direction of this department. The original contract was for a radial brick chimney; but on account of delays in the transportation of the materials due to railroad embargoes, and the urgent necessity of completing the work for the operation of the plant, the contract was changed so as to build it of common brick. The work was done by the Alphons Custodis Chimney Construction Company, and was completed on May 31, 1916, at a total cost of \$1,900, exclusive of engineering and inspection.

A reinforced concrete sectional bulkhead has been built along the shore between Revere Street and Oak Island shelters to replace the old wooden bulkhead, which had almost wholly disappeared on account of decay and damage by storms. This new bulkhead is built of precast posts and slabs of reinforced concrete. The work was done by the forces of Revere Beach Division, under the direction and supervision of this department, at a total cost of \$3,849.87. The total length of bulkhead built was 1,350 feet.

MAINTENANCE.

Parkways.

Lynn Fells Parkway. — The portion of the roadway between Tremont Street and Melrose Street, on which only a temporary surfacing had been constructed on account of continued settlement of the fill, has been resurfaced with bituminous macadam for a width of about 24 feet in the center, leaving a driveway on each side about 8 feet in width, with a gravel surface for the use of horse-drawn vehicles. The work was done by the forces of Middlesex Fells Division, and engineering services were furnished by this department.

Lynnway. — Considerable repairs have been made to Saugus River Bridge, principally on the piles, the tops of which had decayed, and plank runways have been installed underneath the bridge for fire protection. The materials for the work were furnished by the Commission and the work was done by bridge carpenters furnished by Rendle-Stoddard Company, under the direction and supervision of this department. The total cost was \$1,489.35.

Middlesex Fells Parkway. — Similar repairs to those made on the Saugus River Bridge were made in the same manner on the wooden portion of Wellington Bridge. The cost was \$325.74.

A location has been granted to the city of Somerville to construct a municipal bath-house near the southerly end of Wellington Bridge. The work of erecting the building is in progress.

The sections of the easterly roadway of Middlesex Fells Parkway from Middlesex Avenue to Wellington Bridge in Somerville, and from Wellington Bridge to the junction of Middlesex Avenue in Medford, are in poor condition. This roadway is subject to a large amount of both automobile and heavy teaming traffic, and has been difficult to maintain with bituminous surfacing. I recommend that it be resurfaced with Portland cement concrete. The estimated cost is \$21,000.

Revere Beach Parkway. — Repairs have been made to the Malden River Bridge similar to those on the Saugus River Bridge. The cost was \$398.92.

Portions of the roadway of this Parkway have been reconstructed and resurfaced by the forces of Revere Beach Division as follows: Middlesex Fells Parkway to Malden River Bridge, 1,000 feet long, 3,000 square yards; Main Street to Broadway, Everett, 5,000 feet long, 2,000 square yards; Washington Avenue to Garfield Avenue (traffic road), 1,750 feet long, 4,600 square yards; Broadway to Mill Street, Revere, 1,750 feet long, 6,800 square yards. In this work generally a new base of clean gravel was laid and bituminous macadam surface. Engineering services were furnished by this department.

Reservations.

Charles River Reservation, Lower Basin Section. — The care, maintenance and operation of the locks, drawbridge and sluices at the Charles River Dam have been under the direction and supervision of this department, and inspection and all necessary repairs and overhauling of plant and electrical equipment have been made. The principal equipment of this plant consists of two 50-horse power boilers for heating buildings and keeping gates free from ice in winter; six lock-gates; thirteen sluice-gates and forty-three tide-gates; six pumps varying in size from

2 to 24 inches; forty-three motors of varying sizes, with all necessary controlling devices, for the operation of the draw-bridges, locks and gates.

The following is a record of the traffic and freights which have passed through the locks during the year: —

Main Lock.

Number of openings,	3,626
Number of vessels,	4,163
Number of small boats,	1,604
Lumber (feet B.M.),	10,661,944
Sand (tons),	127,586
Granite (tons),	5,653
Coal (tons),	390,381
Gravel (tons),	71,832
Oil (barrels),	146,200
Water (gallons),	40,600
Asphalt (tons),	15
Asphalt (barrels),	1,700
Wood (cords),	100
Bricks,	760,000
Piling (feet B.M.),	497,000
Piling (pieces),	688
Rubbish (tons),	1,220
Miscellaneous (tons),	110

Small Boat Lock.

Number of openings,	1,934
Number of boats,	2,914

There were 2,841 drawbridge openings.

The channels of the Lower Basin Section, Broad Canal and Lechmere Canal have been kept clear of ice during last winter season, and bids have been received for the work for the winter of 1916-17. As the lowest bid received greatly increased the cost of doing the work under the terms of previous contracts, alternative bids were requested for chartering a towboat for a definite time. This method appears to be the most economical, and arrangements have been made with the Boston Sand and Gravel Company to charter a towboat for three months. On account of the difficulty and increasing cost of obtaining boats

for this work, I again recommend the purchase of a boat by the Commission, which will be available at all times.

The large lock-gates in the ship lock were repaired and painted in the period between Feb. 14, 1916, and March 2, 1916, at a total cost of \$3,805.71. This work necessitated the closing of the lock to traffic, and was prosecuted day and night to reduce the closed time to a minimum.

Soundings have been taken in Broad and Lechmere Canals to determine the amount of shoaling which has occurred since the channels were originally dredged. It was found that it would be necessary to excavate about 5,000 cubic yards in Broad Canal and about 2,000 cubic yards in Lechmere Canal to restore them to the established grades. In August of this year about 1,500 cubic yards were dredged from the upper end of Lechmere Canal, where the shoaling had become so great as to interfere with shipping.

On the embankment promenade from Cambridge Bridge to Berkeley Street and on the park on the dam near the large shelter about 1,770 square yards of granolithic walk surface were laid to replace portions damaged by settlement of the original fill back of the walls. The cost of this work was \$2,475.11.

Middlesex Fells Reservation. — The work of making surveys and plans for the widening of Woodland Road is in progress.

GENERAL.

The work of repairs and maintenance of roadways in the parkways and reservations and the work of bituminous treatments have been done under the supervision of this department. Engineering services have been furnished for this and other maintenance work.

This department supervised and inspected the work done under 181 permits which were issued to cities, towns, corporations and individuals for work in the parkways and reservations. The cost of this supervision and inspection was \$818.05.

The bridges under the care and control of this Commission have been inspected and report made to the Secretary, with recommendations for necessary repairs.

Plans have been made from time to time for land conveyances.

The following tables are appended to this report: —

TABLE 1. — Data relating to Metropolitan Park System.

TABLE 2. — Summary of cost of road repairs and maintenance.

Respectfully submitted,

JOHN R. RABLIN,

Engineer.

DEC. 1, 1916.

TABLE 1. — DATA RELATING TO METROPOLITAN PARK SYSTEM.

Areas of Reservations and Parkways.

Reservations: —	Acres.	
Blue Hills,	4,906.43	
Middlesex Fells,	1,898.09	
Stony Brook,	463.72	
Beaver Brook,	58.33	
Hart's Hill,	22.97	
Hemlock Gorge,	23.06	
Charles River,	710.30	
Mystic River,	54.08	
Neponset River,	922.59	
King's Beach and Lynn Shore,	22.692	
Revere Beach,	64.99	
Winthrop Shore,	16.83	
Quincy Shore,	37.59	
Nantasket Beach,	25.59	
Total,		9,227.262
Parkways: —		
Hammond Pond,	161.15	
Blue Hills,	83.58	
Old Colony,	56.035	
Woburn,	23.24	
Middlesex Fells,	82.12	
Revere Beach,	126.93	
Mystic Valley,	336.31	
Neponset River,	74.11	
Fresh Pond,	12.40	
Lynn Fells,	7.72	
Furnace Brook,	94.03	
Nahant Beach,	81.98	
Lynnway,	5.15	
Winthrop,	7.67	
Dedham,	35.867	
Alewife Brook,	144.53	
West Roxbury,	72.37	
Quannapowitt,	13.47	
Total,		1,418.662
Grand total, reservations and parkways,		10,645.924

Lengths of Formal Roads constructed.

Reservations:—	Double Roadways (Miles).	Single Roadways (Miles).	Total Miles.
Charles River,	—	4.87	
Lynn Shore,	—	.96	
Quincy Shore,	—	2.24	
Revere Beach,	—	2.70	
Stony Brook,	—	2.34	
Winthrop Shore,	—	1.07	
		<hr/>	14.18
Parkways:—			
Alewife Brook,	—	.70	
Blue Hills,	1.46	1.61	
Fresh Pond,	—	.50	
Furnace Brook,	—	3.24	
Lynn Fells,	—	1.05	
Lynnway,	—	.68	
Middlesex Fells,	4.10	1.77	
Mystic Valley,	—	5.50	
Nahant Beach,	—	2.52	
Neponset River,	—	.53	
Revere Beach,	1.45	3.73	
Winthrop,	—	.49	
Woburn,	—	1.38	
	<hr/>	<hr/>	23.70
	7.01*		

* Equivalent in miles of single roadway, 14.02

Highways transferred by or taken from cities and towns:—

	Miles.
Alewife Brook Parkway, . . . . .	.44
Blue Hills Reservation,	1.23
Middlesex Fells Reservation,	6.63
Nantasket Beach Reservation, . . . . .	.71
Nahant Beach Parkway,	2.05
	<hr/>
	11.06
Grand total,	<hr/>
	62.96

All above roads open to automobile traffic.

Lengths of Carriage Roads in Reservations.

	Miles.
Blue Hills Reservation,	29.93
Middlesex Fells Reservation,	17.50
Stony Brook Reservation,	1.60
Beaver Brook Reservation, . . . . .	.22
Charles River Reservation,	3.70
Total,	52.95

Of the above roads 10.19 miles are open to automobile traffic.

Lights in Parkways and Reservations.

	Lights.
Alewife Brook Parkway (Welsbach naphtha),	17
Blue Hills Parkway (Welsbach gas),	80
Furnace Brook Parkway (Welsbach gas),	86
Middlesex Fells Parkway (Welsbach naphtha),	261
Middlesex Fells Reservation (Welsbach naphtha),	41
Middlesex Fells Reservation (electric),	48
Mystic Valley Parkway (Welsbach naphtha),	160
Lynn Fells Parkway (Welsbach naphtha),	33
Nantasket Beach Reservation (electric),	23 ^{1, 2}
Winthrop Parkway (Welsbach naphtha),	11
Winthrop Shore Reservation (electric),	7
Nahant Beach Parkway (electric),	7 ³
Lynn Shore Reservation (electric),	28
Lynnway (electric),	17
Charles River Reservation, Upper Division, along the Speedway (Welsbach naphtha),	69 ⁴
Charles River Reservation, Upper Division, along Nonantum Road (Welsbach gas),	19
Revere Beach Parkway (Welsbach naphtha),	169
Revere Beach Parkway (electric),	1
Fresh Pond Parkway (electric),	15
Quincy Shore Reservation (Welsbach gas),	78
Quincy Shore Reservation (electric),	2
Revere Beach Reservation (Welsbach naphtha),	35
Revere Beach Reservation (Welsbach gas),	53
Revere Beach Reservation (electric),	16 ⁵
Charles River Reservation, Boston Embankment (electric),	104
Charles River Reservation, Lower Basin, Dam and Lock (electric),	15
Woburn Parkway (Welsbach naphtha),	31
Total,	1,426

¹ Six additional lights in summer.

² Three additional lights in summer south of bath-house near wall.

³ Five additional lights in summer.

⁴ Three electric lights in yard at administration building.

⁵ Three hundred and ninety-five additional lights in summer.

<i>Miles of Seashore.</i>										Miles.
Lynn Shore, . . . . .	.	.	.	.	.	.	.	.	.	1.50
Nahant Beach, . . . . .	.	.	.	.	.	.	.	.	.	3.92
Revere Beach, . . . . .	.	.	.	.	.	.	.	.	.	2.74
Winthrop Shore, . . . . .	.	.	.	.	.	.	.	.	.	1.71
Nantasket Beach, . . . . .	.	.	.	.	.	.	.	.	.	1.02
Quincy Shore, . . . . .	.	.	.	.	.	.	.	.	.	2.19
Total,										13.08

<i>Lengths of Sea Walls.</i>										Miles.
Lynn Shore, . . . . .	.	.	.	.	.	.	.	.	.	1.30
Revere Beach at Northern Circle, . . . . .	.	.	.	.	.	.	.	.	.	.08
Revere Beach at Eliot Circle, . . . . .	.	.	.	.	.	.	.	.	.	.15
Revere Beach, shore protection, bath-house shelter to Revere Street shelter, . . . . .	.	.	.	.	.	.	.	.	.	.29
Revere Beach, shore protection, south of Northern Circle, . . . . .	.	.	.	.	.	.	.	.	.	.28
Winthrop Shore, bridge to Great Head, . . . . .	.	.	.	.	.	.	.	.	.	1.04
Winthrop Shore, bridge to Grover's Cliff, . . . . .	.	.	.	.	.	.	.	.	.	.23
Quincy Shore Reservation, southerly end, . . . . .	.	.	.	.	.	.	.	.	.	.15
Nantasket Beach Reservation, . . . . .	.	.	.	.	.	.	.	.	.	.43
Total,										3.95

<i>Miles of River Bank.</i>										Miles.
Charles River, . . . . .	.	.	.	.	.	.	.	.	.	28.13
Mystic River, . . . . .	.	.	.	.	.	.	.	.	.	8.16
Neponset River, . . . . .	.	.	.	.	.	.	.	.	.	15.86
Alewife Brook, . . . . .	.	.	.	.	.	.	.	.	.	4.50
Total,										56.65

<i>Bridges.</i>										
Reinforced concrete bridges, . . . . .	.	.	.	.	.	.	.	.	.	11
Steel bridges, . . . . .	.	.	.	.	.	.	.	.	.	9
Wooden bridges, . . . . .	.	.	.	.	.	.	.	.	.	5 ¹
Drawbridges, . . . . .	.	.	.	.	.	.	.	.	.	5
Footbridges, . . . . .	.	.	.	.	.	.	.	.	.	11
Total,										41

¹ One-half of Wellington Bridge rebuilt with concrete girders.

Culverts.

Reinforced concrete and other masonry culverts,	25
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Dams.

Beaver Brook Reservation, small wooden dams,	2
Charles River Reservation, Charles River Basin Tidal Dam, 1,200 feet in length,	1
Charles River Reservation, reinforced concrete dam at Washing- ton Street, Newton Lower Falls, 200 feet in length,	1
Hemlock Gorge Reservation, small reinforced concrete dam on East Branch of river, Newton Upper Falls,	1
Hemlock Gorge Reservation, reinforced concrete dam in Charles River at Boylston Street, Newton Upper Falls, 90 feet in length,	1
Mystic River Reservation, reinforced concrete tidal dam at Cradock Bridge, 100 feet in length; weirs, 400 feet in length,	1
Total,	7

Lock-gates, Sluice-gates and Tide-gates.

Charles River Reservation, Charles River Basin Tidal Dam, 6 lock-gates, 13 sluice-gates, 43 tide-gates.
Mystic River Reservation, Cradock Bridge Tidal Dam, 2 lock-gates, 4 sluice-gates, 8 tide-gates.
Quincy Shore Reservation, 8 tide-gates.
Revere Beach Parkway, 1 tide-gate.

Police Signal System.

	Miles.
Blue Hills Division,	30 $\frac{1}{2}$
Middlesex Fells Division,	18 $\frac{1}{4}$
Nantasket Beach Division,	2 $\frac{1}{2}$
Charles River Reservation,	10
Fresh Pond Parkway,	$\frac{1}{2}$
Total,	61 $\frac{3}{4}$

Revere Beach Division Police Signal System, serving 11 miles of parkways and reservations, and Middlesex Fells Division, serving 1 $\frac{1}{2}$ miles of parkway, on wires leased from New England Telephone and Telegraph Company.

TABLE 2. — SUMMARY OF COST OF ROAD REPAIRS AND MAINTENANCE, 1916.

PARKWAY OR RESERVATION.	Length (Feet).	Width of Roadway (Feet).	Square Yards.	COST PER SQUARE YARD IN DETAIL.						Total Amount.	Remarks.	Location.	
				Labor (Cents).	Broken Stone (Cents).	Sand (Cents).	BITUMINOUS BINDER OR DUST LAYER.						Total Cost (Cents).
							Kind of Material.	Gallons per Square Yard.	Cost (Cents).				
Blue Hills Parkway, .	1,100	18	2,200	1.00	-	-	Asphaltic road oil No. 6 (Standard Oil Company).	.25	1.46	2.46	Surface treatment,	Harland Street from Unquity Road to Canton Avenue, Milton.	
Blue Hills Reservation.	5,000	16	8,888	3.35	-	.67	Asphaltic road oil No. 6.	.42	2.96	6.98	Surface treatment,	Wampatuck Road, Administration Road to Furnace Brook Parkway, Quincy.	
Blue Hills Reservation.	7,780	16	13,831	2.13	-	.17	Asphaltic road oil No. 6.	.35	2.42	4.72	Surface treatment,	Administration Road, Milton and Quincy.	
Blue Hills Reservation.	9,450	16	16,800	1.35	-	.20	Asphaltic road oil No. 6.	.25	1.77	3.32	Surface treatment,	Unquity Road, Milton.	
Blue Hills Reservation.	7,593	16	13,511	2.04	-	.18	Asphaltic road oil No. 6.	.29	2.06	4.28	Surface treatment,	Border Road, Milton and Randolph.	
Charles River Reservation.	4,880	30	16,266	.55	-	.55	Tarime No. 1 (American Tar Company).	.32	2.34	3.44	Surface treatment,	Soldiers' Field Road, Western Avenue to ½ Pole, Brighton.	
Charles River Reservation.	2,000	30	6,666	25.55	20.61	.62	Tarime Nos. 1 and 2.	1.65	12.99	59.78	Resurfacing,	Soldiers' Field Road, from Station 63+00 to Station 83+00, Brighton.	
Fresh Pond Parkway, .	2,700	40	12,000	1.80	-	.29	Asphaltic road oil No. 6.	.33	2.80	4.89	Surface treatment,	Mt. Auburn Street to Huron Avenue, Cambridge.	
Lynn Shore Reservation.	2,714	40	12,064	.82	2.73	-	Tarime No. 1, .	.25	2.02	5.57	Surface treatment,	Prescott Place, Lynn, to Humphrey Street, Swampscott.	
Lynn Falls Parkway, .	1,900	24	5,067	23.60	33.50	-	Standard binder A, .	1.61	14.60	71.70	Reconstruction, .	Trenont Street to Melrose Street, Melrose.	
Middlesex Falls Parkway.	365	28, 40	1,555	129.85	73.23	-	Tarite No. 2 (American Tar Company).	2.83	21.22	224.30	Reconstruction, .	Westerly roadway, south of Wellington Bridge, Somerville.	
Middlesex Falls Reservation.	4,566	26	13,200	16.00	40.00	-	Standard binder A, .	1.51	14.00	70.00	Resurfacing,	A part of Forest and Main streets, Medford and Stoneham.	
Mystic Valley Parkway, .	4,000	36	17,144	3.93	2.87	-	Standard binder A, .	.58	5.25	12.05	Surface treatment,	High Street to a point opposite Lower Dam, Medford.	
Mystic Valley Parkway, .	1,700	36	6,800	31.00	29.00	-	Standard binder A, .	1.70	15.00	75.00	Resurfacing,	Alewite Brook to River Street, Arlington.	

TABLE 2. — SUMMARY OF COST OF ROAD REPAIRS AND MAINTENANCE, 1916 — *Concluded.*

PARKWAY OR RESERVATION.	Length (Feet).	Width of Roadway (Feet).	Square Yards.	COST PER SQUARE YARD IN DETAIL.							Total Amount.	Remarks.	Location.	
				BITUMINOUS BINDER OR DUST LAYER.				Kind of Material.	Gallons per Square Yard.	Cost (Cents).				Total Cost (Cents).
				Broken Stone (Cents).		Sand (Cents).	Labor (Cents).							
Nantasket Beach Reservation.	3,140	45, 75, 90	18,900	.50	-	-	Tarvia B (Barrett Manufacturing Company).	.53	4.23	4.73	Surface treatment,	Nantasket Avenue and Wharf Avenue, Hull.		
Neponset River Parkway.	2,750	26	7,944	.89	-	-	Asphaltic road oil No. 1.	.20	1.41	2.30	Surface treatment,	Blue Hill Avenue to Brush Hill Road, Milton.		
Nahant Beach Parkway,	1,100	50	6,000	.74	1.91	-	Tarime No. 1.	.31	2.54	5.19	Surface treatment,	Washington Street to Traffic Road, Nahant.		
Revere Beach Parkway,	1,700	36	6,818	45.00	34.00	2.00	Tarvia X and Tarvia A (Barrett Manufacturing Company).	2.42	18.00	99.00	Reconstruction,	Broadway to a point 338 feet east of Mill Street, Revere.		
Revere Beach Parkway,	1,650	26	4,587	9.00	15.00	1.00	Tarime No. 2.	1.77	14.00	39.00	Resurfacing,	Traffic Road, Washington Avenue to Garfield Avenue, Chelsea.		
Revere Beach Parkway,	2,700	36	10,000	.70	1.10	.37	Tarime No. 1.	.26	1.95	4.12	Surface treatment,	Webster Avenue to Station 99+00, Chelsea.		
Revere Beach Parkway,	2,860	36	11,450	.81	1.31	-	Tarime No. 1.	.33	2.57	4.69	Surface treatment,	Broadway to 500 feet east of Vinal Street, Everett.		
Revere Beach Parkway,	1,650	36	6,250	.74	1.62	.45	Tarime No. 1.	.24	1.80	4.61	Surface treatment,	Pleasure Drive, Washington Avenue to Webster Avenue, Chelsea.		
Revere Beach Parkway,	3,000	36	12,000	.75	1.63	.48	Tarime No. 1.	.20	1.40	4.26	Surface treatment,	Campbell Avenue to Eliot Circle, Revere.		
Revere Beach Parkway,	450	36	1,800	51.00	48.00	1.00	Tarime No. 2.	2.43	18.30	118.30	Reconstruction,	Broadway to Main Street, Everett.		
Revere Beach Parkway,	1,000	28	3,110	14.77	20.52	-	Tarime No. 2.	1.95	14.72	50.01	Resurfacing,	Malden River Bridge to Fellsway, Medford.		
Revere Beach Reservation.	158	40	700	21.95	19.27	2.12	Tarime No. 2.	1.69	13.88	57.22	Resurfacing,	Chester Avenue, between Ocean Avenue and Boston, Revere Beach & Lynn Railroad, Revere.		
Revere Beach Reservation.	2,475	40	11,000	.53	1.43	-	Tarime No. 1.	.24	1.87	3.83	Surface treatment,	Shirley Avenue to bath house, Revere.		
Winthrop Shore Reservation.	3,971	36	15,884	.83	2.00	.26	Tarime No. 1.	.21	1.66	4.75	Surface treatment,	Grover's Avenue to south side of Irwin Street and Beach Road Extension, Winthrop.		
Winthrop Parkway,	1,380	30	4,600	.84	1.23	.52	Tarime No. 1.	.25	1.79	4.38	Surface treatment,	Eliot Circle to Wave Street, Revere.		

FINANCIAL STATEMENT.

DEC. 1, 1915, TO DEC. 1, 1916.

Metropolitan Parks Loan Fund,	\$9,049,554 95
Receipts added to loan before June 1, 1901,	198,942 81
	<u>\$9,248,497 76</u>

EXPENDITURES.

Middlesex Fells Reservation: —		
Work under chapter 4, Special Acts of 1915: —		
Pipe line to recreation grounds,	\$52 00	
	<u>52 00</u>	\$52 00
Charles River Reservation: —		
Land,	\$89,545 26	
Legal,	3,500 00	
Claims,	6,500 00	
Work under chapter 4, Special Acts of 1915: —		
Water supply, etc., recreation grounds,	\$734 27	
Grading site for band stand,	10 00	
	<u>744 27</u>	100,289 53
Mystic River Reservation: —		
Land,	\$350 00	
	<u>350 00</u>	350 00
Quincy Shore Reservation: —		
Legal,	\$1 44	
	<u>1 44</u>	1 44
Weston Bridge: —		
Construction: —		
Contracts: —		
T. Stuart & Son,	\$36,158 29	
Engineering: —		
Pay rolls,	\$1,471 37	
Expenses,	212 53	
	<u>1,683 90</u>	695 75
Consulting engineers,		
Landscape architects: —		
Services,	\$37 10	
Expenses,	63	
	<u>37 73</u>	
Printing contract,	62 83	
	<u>38,638 50</u>	38,638 50
General expense: —		
Transfer to Serial Bond Loan (unexpended balance, Alewife Brook purification appropriation),	3,601 10	
	<u>142,932 57</u>	
Amounts charged to Dec. 1, 1915,	9,090,978 24	
	<u>9,233,910 81</u>	9,233,910 81
Balance,		\$14,586 95

METROPOLITAN PARKS LOAN FUND, SERIES II.

Metropolitan Parks Loan Fund, Series II.,	\$6,536,000 00
Receipts added to loan before June 1, 1901,	29,914 16

\$6,565,914 16

EXPENDITURES.

Middlesex Fells Parkway: —			
Land,	\$1,058 77		
Legal,	5 33		
Work under chapter 5, Special Acts of 1915: —			
Road work,	1,717 25		
			\$2,781 35
Mystic Valley Parkway: —			
Construction: —			
Contracts: —			
Smith & Lovett			
Company,	\$3,067 08		
James H. Fannon,	1,416 06		
Apted & McDuffee,	480 00		
		\$4,963 14	
Labor and materials,	3,656 18		
			\$8,619 32
Engineering: —			
Pay rolls,	\$839 41		
Expenses,	159 93		
		999 34	
Landscape architects: —			
Services,	\$49 98		
Expenses,	3 90		
		53 88	
Legal,		60 83	
Advertising contracts,		156 38	
			9,889 75
Revere Beach Parkway: —			
Legal,	\$15 50		
			15 50
Fresh Pond Parkway: —			
Legal,	\$115 84		
			115 84
Furnace Brook Parkway: —			
Construction: —			
Contracts: —			
John Cashman &			
Sons Company,	\$36,164 01		
Hugh Nawn Con-			
tracting Company,	22,218 00		
		\$58,382 01	
Labor and materials,	3,821 62		
			\$62,203 63
Engineering: —			
Pay rolls,	\$1,010 23		
Expenses,	283 05		
		1,293 28	
			63,496 91
Lynn Fells Parkway: —			
Legal,	\$4 96		
			4 96

Amounts carried forward, \$76,304 31 \$6,565,914 16

<i>Amounts brought forward,</i>		\$76,304 31	\$6,565,914 16
Winthrop Parkway:—			
Land,		\$48,822 73	
Engineering:—			
Pay rolls,	\$53 06		
Expenses,	20 00		
		73 06	
Legal,		1,501 60	
Claims,		450 00	
			50,847 39
Alewife Brook Parkway:—			
Land,		\$85 47	
Construction:—			
Contracts:—			
Kelley & Sullivan,	\$24,389 07		
Labor and materials,	1,210 77		
		25,599 84	
Engineering:—			
Pay rolls,	\$1,941 22		
Expenses,	100 04		
		2,041 26	
Landscape architects:—			
Services,	\$86 00		
Expenses,	87		
		86 87	
Advertising contracts,		201 67	
Printing contracts,		56 73	
			28,071 84
Old Colony Parkway:—			
Land,		\$150,506 42	
Engineering:—			
Pay rolls,	\$949 37		
Expenses,	34 86		
		984 23	
Legal,		6,690 21	
Claims,		325 00	
			158,505 86
Dedham Parkway:—			
Land,		\$1,684 80	
Construction:—			
Labor and materials,		8,906 58	
Engineering:—			
Pay rolls,		10 50	
Legal,		24 94	
			10,626 82
Hammond Pond Parkway:—			
Land,		\$45,654 00	
Engineering:—			
Pay rolls,	\$251 17		
Expenses,	29 01		
		280 18	
Legal,		116 79	
Claims,		125 00	
			46,175 97
Quannapowitt Parkway:—			
Land,		\$6,625 00	
Engineering:—			
Pay rolls,	\$340 30		
Expenses,	1 92		
		342 22	
Legal,		741 07	
			7,708 29
<i>Amounts carried forward,</i>		\$378,240 48	\$6,565,914 16

<i>Amounts brought forward,</i>							\$378,240 48	\$6,565,914 16
West Roxbury Parkway: —								
Work under chapter 5, Special Acts of 1915: —								
Moth work,						\$199 42		
								199 42
Wellington Bridge: —								
Construction: —								
Contract: —								
Rendle & Stoddard,						\$7,718 75		
								7,718 75
West Street, Braintree: —								
Engineering: —								
Pay rolls,						\$16 14		
Expenses,						50		
							\$16 64	
								16 64
Neponset Bridge: —								
Engineering: —								
Pay rolls,						\$1,242 56		
Expenses,						21 00		
							\$1,263 56	
Landscape architects: —								
Services,						\$49 95		
Expenses,						1 00		
							50 95	
Legal,							6 87	
Claims,							100 00	
Expenses of hearing,							84 45	
								1,505 83
								\$387,681 12
Amounts charged to Dec. 1, 1915,							5,609,262 83	
								5,996,943 95
Balance,								\$568,970 21

CHARLES RIVER BASIN LOAN.

Total amount of loan,								\$4,500,000 00
Receipts added to loan,								9,368 91
								\$4,509,368 91

EXPENDITURES.

Administration: —								
Miscellaneous,							\$35 00	
Engineering: —								
Chief engineer,						\$85 00		
Engineering assistants,						1,088 57		
Traveling,						72 65		
Heating sub-office,						15 95		
Miscellaneous expenses,						52 82		
							1,314 99	
Construction: —								
Contract No. 183, Rowe Contracting Company,						\$15,519 70		
Contract, service shed, Archdeacon & Sullivan,						11,264 80		
							26,784 50	
<i>Amounts carried forward,</i>							\$28,134 49	\$4,509,368 91

<i>Amounts brought forward,</i>		\$28,134 49	\$4,509,368 91
Construction, additional:—			
Labor,	\$336 75		
Freight and express,	16 92		
Professional services,	1,021 07		
Jobbing and repairing,	102 11		
Castings, ironwork and metals,	442 80		
Grass seed,	167 92		
Photographic supplies,	2 88		
Asphalt,	1,914 50		
Rent of land,	1 00		
		4,005 95	
Real estate:—			
Legal and expert,	\$142 23		
Settlements,	28,942 50		
		29,084 73	
		\$61,225 17	
Amounts charged to Dec. 1, 1915,		4,392,000 58	
			4,453,225 75
Balance,			\$56,143 16

NORTH BEACON STREET BRIDGE LOAN.

Chapter 780, Acts of 1914,	\$175,000 00
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EXPENDITURES.

Construction:—			
Contracts:—			
A. G. Tomasello,	\$74,355 09		
Labor and materials,	261 28		
		\$74,616 37	
Engineering:—			
Pay rolls,	\$3,625 53		
Expenses,	336 13		
		3,961 66	
Advertising contract,		162 45	
Printing contract,		57 03	
		\$78,797 51	
Amounts charged to Dec. 1, 1915,		7,352 71	
			86,150 22
Balance,			\$88,849 78

METROPOLITAN PARKS SYSTEM MAINTENANCE.

Appropriation, Dec. 1, 1915, to Dec. 1, 1916,	\$436,406 41
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EXPENDITURES.

General expense:—			
Police:—			
Pay rolls,	\$110,578 84		
Miscellaneous,	9,018 01		
		\$119,596 85	
Salaries:—			
Commissioners,	\$3,450 00		
General office,	10,113 28		
Engineering department,	8,725 82		
		22,289 10	
<i>Amounts carried forward,</i>		\$141,885 95	\$436,406 41

<i>Amounts brought forward,</i>	\$141,885 95	\$436,406 41
Engineering supplies,	1,072 78	
Rent, lighting and care of offices,	3,644 94	
Telephones,	1,004 03	
Stationery and printing,	725 17	
Annual report, one-half,	663 47	
Automobile expense,	370 37	
Postage,	307 36	
Maps and books,	191 13	
Typewriters,	174 15	
Filing, cabinets, cards, etc.,	163 59	
Typewriter supplies and repairs,	56 75	
Electrical fixtures,	37 55	
Traveling,	37 45	
Spring water,	30 80	
Towel supply,	30 18	
Ice,	30 00	
Expenses on account of bond sales,	27 27	
Check writer,	25 00	
Care of water cooler,	20 00	
Recording papers and certified copies,	13 88	
Press clippings,	13 15	
Varnish samples,	12 59	
Office repairs,	11 96	
Mimeograph supplies,	10 42	
Clock,	10 00	
Mazda lamps,	8 52	
Carbon paper,	8 40	
Photographs and slides,	6 00	
Copying cloths,	6 00	
Fire extinguishers,	5 95	
Office supplies,	4 74	
Express and freight,	4 69	
Rubber bands,	4 13	
Soap,	3 66	
Putting on storm windows,	3 55	
Twine,	3 36	
Germicide,	3 00	
Matches,	2 73	
Advertising sale,	1 85	
Chamois,	1 25	
Repairing badges,	65	
Miscellaneous,	7 08	
	<hr/>	150,645 50
Blue Hills Reservation: —		
Labor,	\$29,122 04	
Teaming,	12 00	
Keep of horses,	4,932 19	
Horses, carriages, automobiles, etc.,	5,236 17	
	<hr/>	\$39,302 40
Labor and supplies, gypsy and brown-tail moth work,	47,409 25	
General supplies,	3,389 24	
Watering, or its equivalent,	2,583 00	
Repairs,	377 32	
Water rates,	344 46	
Stationery and printing,	281 12	
Telephones,	250 42	
Lighting buildings,	171 73	
Express and freight,	66 74	
Shutting off water,	14 60	
	<hr/>	94,190 28
<i>Amounts carried forward,</i>	\$244,835 78	\$436,406 41

Amounts brought forward, \$244,835 78 \$436,406 41

Middlesex Fells Reservation:—

Labor,	\$20,204 58	
Teaming,	1,768 50	
Keep of horses,	1,847 18	
Horses, carriages, automobiles, etc.,	1,367 38	
	<hr/>	\$25,187 64
Labor and supplies, gypsy and brown-tail moth work,		24,915 51
Watering, or its equivalent,		4,991 97
General supplies,		2,492 97
Telephones,		320 91
Lighting buildings,		292 71
Soda fountain,		252 43
Stationery and printing,		237 00
Nursery stock,		105 00
Traveling,		104 20
Animals,		95 00
Swing outfit,		72 80
Express and freight,		50 89
Water rates,		34 12
Auto list,		13 00
Physician's services,		7 00
Maps,		4 20
Exterminating rats,		2 85
Post-office box rent,		2 50
Proportionate share in incandescent lights,		1 65
Miscellaneous,		2 55
	<hr/>	59,186 90

Revere Beach Reservation:—

Labor,	\$18,611 73	
Teaming,	48 25	
Keep of horses,	813 66	
Horses, carriages, automobiles, etc.,	4,060 92	
	<hr/>	\$23,534 56
Street lighting,		4,456 09
General supplies,		2,885 63
Watering, or its equivalent,		1,576 96
Telephones,		471 84
Lighting buildings,		429 03
Water rates,		322 56
Stationery and printing,		254 20
Express and freight,		139 21
Traveling,		87 37
Landscape architects, services,		75 00
Repairs,		28 46
Directory,		3 00
	<hr/>	34,263 91

Stony Brook Reservation:—

Labor,	\$1,588 44	
Teaming,	36 00	
Keep of horses,	42 05	
Horses, carriages, etc.,	28 30	
	<hr/>	\$1,694 79
Labor and supplies, gypsy and brown-tail moth work,		4,998 47
Watering, or its equivalent,		184 07
General supplies,		82 65
Telephones,		37 73
Stationery and printing,		27 21
Water rates,		8 00
	<hr/>	7,032 92

Amounts carried forward, \$345,319 51 \$436,406 41

Amounts brought forward, \$345,319 51 \$436,406 41

Beaver Brook Reservation:—

Labor,	\$2,221 46	
Teaming,	21 00	
Keep of horses,	160 16	
Horses, carriages, etc.,	29 84	
		\$2,432 46
Labor and supplies, gypsy and brown-tail moth work,	417 56	
General supplies,	263 52	
Repairs,	212 92	
Telephones,	47 40	
Constructing chimney,	44 00	
Stationery and printing,	36 27	
Water rates,	22 90	
Use of sewer,	9 21	
Lighting buildings,	7 60	
Drinking post,	5 50	
Traveling,	4 10	
Express,	30	

3,503 74

Charles River, Upper Division:—

Labor,	\$14,977 89	
Teaming,	479 50	
Keep of horses,	1,502 45	
Horses, carriages, automobiles, etc.,	2,211 63	
		\$19,171 47
Labor and supplies, gypsy and brown-tail moth work,	8,481 00	
Watering, or its equivalent,	7,469 21	
General supplies,	3,195 33	
Street lighting,	3,164 60	
Filling approach to Weston Bridge,	462 82	
Telephones,	365 51	
Trees and shrubs,	341 50	
Stationery and printing,	315 70	
Lighting buildings,	216 58	
Water rates,	133 00	
Repairs,	108 01	
Traveling,	41 38	
Physicians' services,	38 00	
Express and freight,	15 79	
Transporting boat,	12 00	
Sealing scales,	65	
Miscellaneous,	1 80	

43,534 35

Riverside Recreation Grounds:—

Labor,	\$984 52	
Teaming,	307 50	
Horses, carriages, etc.,	1 60	
		\$1,293 62
Shingling dance hall and dormitory,	1,156 00	
Repairs,	244 86	
Lighting buildings,	141 94	
General supplies,	121 20	
Repairing carbonator,	115 98	
Telephones,	37 02	
Power,	29 30	
Chimney extension,	16 00	
Express and freight,	15 62	
Water rates,	10 00	
Traveling,	1 35	
Miscellaneous,	1 26	

3,184 15

Amounts carried forward, \$395,541 75 \$436,406 41

Amounts brought forward, \$395,541 75 \$436,406 41

Neponset River Reservation:—

Labor,	\$255 07	
Labor and supplies, gypsy and brown-tail moth work,	1,999 25	
General supplies,	126 88	
Landscape architects, services,	25 00	
Telephone,	24 00	
Shrubs and plants,	4 00	
		<hr/> 2,434 20

Mystic River Reservation:—

Labor,	\$9,603 92	
Teaming,	1,785 10	
Horses, carriages, etc.,	5 40	
		<hr/> \$11,394 42
General supplies,	857 80	
Loam,	603 39	
Power for draw,	250 00	
Repairs,	200 17	
Street lighting,	99 80	
Telephones,	61 15	
Labor and supplies, gypsy and brown-tail moth work,	50 00	
Stationery and printing,	15 17	
Water rates,	5 50	
Express,	3 36	
Traveling,	2 20	
		<hr/> 13,542 96

Lynn Shore Reservation:—

Labor,	\$4,266 51	
Teaming,	280 50	
Keep of horses,	169 97	
Horses, carriages, etc.,	143 78	
		<hr/> \$4,860 76
Street lighting,	2,520 00	
General supplies,	1,168 25	
Watering, or its equivalent,	899 35	
Trees and shrubs,	313 50	
Express and freight,	76 23	
Water rates,	33 65	
Settlement of damages for injuries,	25 71	
		<hr/> 9,897 45

Quincy Shore Reservation:—

Labor,	\$3,576 50	
Teaming,	792 00	
Horses, carriages, etc.,	100 00	
		<hr/> \$4,468 50
Street lighting,	1,689 71	
General supplies,	510 37	
Watering, or its equivalent,	360 25	
Seat shelters,	256 20	
Labor and supplies, gypsy and brown-tail moth work,	199 50	
Lighting buildings,	53 60	
Telephones,	48 14	
Water rates,	32 25	
Express and freight,	10 54	
Repairs,	9 65	
Shutting off water,	6 80	
Trees and shrubs,	6 00	
		<hr/> 7,651 51

Amounts carried forward, \$429,067 87 \$436,406 41

Amounts brought forward, \$429,067 87 \$436,406 41

Winthrop Shore Reservation:—

Labor,	\$1,370 18	
Watering, or its equivalent,	952 56	
Street lighting,	615 96	
General supplies,	141 20	
Repairs,	33 65	
Water rates,	18 45	
	<hr/>	3,132 00
		<hr/>
		432,199 87
Balance,		<hr/> <hr/> \$4,206 54

SPECIAL APPROPRIATIONS.

Pensions.

Appropriations, \$3,260 25

EXPENDITURES.

Geer allowance,	\$364 00
Woodworth allowance,	364 00
Mateer pension,	300 00
Powers pension,	400 00
Haddock pension,	640 50
Finn pension,	591 50
Stewart pension,	600 00
	<hr/>
	3,260 00
	<hr/>
Balance,	\$0 25

Band Concerts.

Appropriation, \$30,000 00

EXPENDITURES.

Blue Hills Division:—
Bands, \$1,990 06

Middlesex Fells Division:—
Bands, \$4,345 10
Erecting band stand, 675 00
Expenses of extra police, 107 55
Chairs, 18 00
Lighting band stands, 10 00
Water cooler, 2 03
Blue print, 20

5,157 88

Revere Beach Reservation:—
Bands, \$8,555 20
Lighting band stand, 69 64

8,624 84

Charles River, Upper Division:—
Bands, \$2,395 48
Ice, 1 50

2,396 98

Riverside Recreation Grounds:—
Bands, 646 70

Charles River, Lower Basin:—
Bands, \$1,007 10
Expenses of extra police, 71 50
Lighting band stand, 69 00

1,147 60

Amounts carried forward, \$19,964 06 \$30,000 00

Amounts brought forward, \$19,964 06 \$30,000 00

Nahant Beach Parkway:—

Bands,	\$1,894 15	
Expenses of police,	19 00	
Lighting band stand,	1 40	
		1,914 55

Nantasket Beach Reservation:—

Bands,		6,831 00
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Beaver Brook Reservation:—

Bands,		330 00
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General office:—

Printing schedules,	22 03	
		29,061 64

Balance,		\$938 36
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Removal of Surplus Material, Quincy Shore Reservation.

Appropriation,		\$3,000 00
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EXPENDITURES.

Cleaning and grading beach,	\$18 38	
Expended to Dec. 1, 1915,	2,567 25	
		2,585 63

Balance,		\$414 37
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Investigation of Development of West Roxbury Parkway.

Appropriation,		\$500 00
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EXPENDITURES.

Engineering:—

Pay rolls,	\$117 36	
Expenses,	96	
		\$118 32

Expended to Dec. 1, 1915,	1 00	
		119 32

Balance,		\$380 68
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West Roxbury Parkway Maintenance.

Appropriation,		\$2,500 00
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EXPENDITURES.

Labor,	\$29 50	
Expended to Dec. 1, 1915,	2,470 31	
		2,499 81

Balance,		\$0 19
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Furnace Brook Parkway Completion.

Appropriation,		\$8,500 00
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Construction:—

Labor and materials,	\$7,950 13	
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Engineering:—

Pay rolls,	338 18	
Expenses,	47 78	
		8,386 09

Balance,		\$113 91
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Surveys of Boulevard from Middlesex Fells Reservation to Quannapowitt Parkway.

Appropriation, \$500 00

EXPENDITURES.

Engineering pay rolls, \$2 08
 2 08

Balance, \$497 92

Bulkhead, Revere Beach.

Appropriation, \$2,600 00

EXPENDITURES.

Labor and materials, \$358 75
 Expended to Dec. 1, 1915, 2,046 60
 2,405 35

Balance, \$194 65

Sea Wall, Northerly from Oak Island.

Appropriation, \$30,000 00

EXPENDITURES.

Tarite, \$223 95
 Expended to Dec. 1, 1915, 26,451 44
 26,675 39

Balance, \$3,324 61

Revere Beach Shore Protection.

Appropriation, \$30,000 00

EXPENDITURES.

Construction: —

Contract, Coleman Brothers, \$13,199 37
 Labor and materials, 5,038 95
 18,238 32

Engineering: —

Pay rolls, \$555 75
 Expenses, 69 30
 625 05

Laying water pipe, 101 39

18,964 76
 Expended to Dec. 1, 1915, 10,986 40
 29,951 16

Balance, \$48 84

Improving Heating Apparatus, Revere Beach Bath-house.

Appropriation, \$35,000 00

EXPENDITURES.

Construction: —

Contracts: —

Cleghorn Company, \$9,897 00

W. A. & H. A. Root, Inc., 9,267 00

Jarvis Engineering Company, 2,000 00

Alphons Custodis Chimney Construction Company, 1,900 00

\$23,064 00

Labor and materials, 63 58

\$23,127 58

Architects' services, 1,548 68

Engineering: —

Pay rolls, \$225 86

Expenses, 5 10

230 96

\$24,907 22

Expended to Dec. 1, 1915, 2,355 55

27,262 77

Balance, \$7,737 23

Completing Lynn Harbor Playground.

Appropriation, \$10,000 00

EXPENDITURES.

Labor and material, Rowe Contracting Company, \$2,489 50

Engineering pay rolls, 42 23

2,531 73

Balance, \$7,468 27

King's Beach Sanitary.

Appropriation, \$5,000 00

EXPENDITURES.

Landscape architect's services, \$37 59

37 59

Balance, \$4,962 41

Improvement of Sanitary Conditions, Charles River.

Appropriation, \$20,000 00

EXPENDITURES.

Contract, John R. Burke, \$17,781 98

Engineering: —

Pay rolls, \$738 64

Expenses, 57 14

795 78

Landscape architect's services, 6 60

\$18,584 36

Expended to Dec. 1, 1915, 576 50

19,160 86

Balance, \$839 14

Extension of Nonantum Road.

Appropriation,	\$500 00
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EXPENDITURES.

Engineering pay rolls,	\$20 60	
		20 60
Balance,		\$479 40

Aberjona River Improvement.

Appropriation,	\$15,000 00
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EXPENDITURES.

Contract, Coleman Brothers,	\$11,037 05	
Engineering: —		
Pay rolls,	\$383 25	
Supplies,	28 39	
		411 64
		\$11,448 69
Expended to Dec. 1, 1915,	3,431 72	14,880 41
Balance,		\$119 59

Expenses of Apportionment Commission.

Appropriations,	\$13,800 00
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EXPENDITURES.

Services of Commission,	\$8,736 49	
Statistician,	612 50	
Reports of hearings,	335 32	
Consulting engineers,	60 00	
Printing report,	28 85	
		\$9,773 16
Expended to Dec. 1, 1915,	1,874 23	11,647 39
Balance,		\$2,152 61

METROPOLITAN PARKS, BOULEVARD MAINTENANCE.

Appropriation Dec. 1, 1915, to Dec. 1, 1916,	\$255,782 75
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EXPENDITURES.

General expense: —		
Police: —		
Pay rolls,	\$35,755 83	
Miscellaneous,	11,942 74	
		\$47,698 57
Salaries: —		
Commissioners,	\$3,450 00	
Secretary and clerks,	10,528 39	
Engineering department,	8,726 73	
		22,705 12
Engineering supplies,	1,072 17	
Rent, lighting and care of offices,	3,016 96	
Amounts carried forward,	\$74,492 82	\$255,782 75

<i>Amounts brought forward,</i>	\$74,492 82	\$255,782 75
Telephones,	883 45	
Annual report, one-half,	663 48	
Automobile expense,	540 90	
Stationery and printing,	410 71	
Postage,	260 36	
Maps and books,	206 15	
Auditing accounts,	198 50	
Adding machine,	175 00	
Filing cabinets, cards, etc.,	130 12	
Expenses on account of bond sales,	109 64	
Typewriter supplies and repairs,	60 80	
Reports of hearings,	60 00	
Traveling,	55 10	
Typewriter desks,	47 60	
Towel supply,	33 12	
Premium on bonds,	30 00	
Recording papers,	29 73	
Electrical fixtures,	29 15	
Spring water,	28 80	
Care of awnings,	23 10	
Office repairs,	20 72	
Mimeograph supplies,	18 75	
Press clippings,	18 45	
Typewriter chairs,	10 20	
Table,	8 50	
Mazda lamps,	7 74	
Cheesecloth,	5 69	
Rubber stamps,	5 00	
Cleaning clock,	4 50	
Soap,	3 88	
Office supplies,	3 84	
Express,	3 79	
Germicide,	3 00	
Time stamp,	3 00	
Matches,	2 57	
Feather dusters,	2 50	
Miscellaneous,	2 45	
	<hr/>	\$78,593 11
Blue Hills Parkway:—		
Labor,	\$3,959 85	
Teaming,	84 00	
Horses, carriages, automobiles, etc.,	472 97	
	<hr/>	\$4,516 82
Labor and supplies, gypsy and brown-tail moth work,	2,797 75	
Street lighting,	2,153 04	
General supplies,	593 55	
Watering, or its equivalent,	592 25	
Tarite,	49 50	
Water rates,	34 99	
Repairs,	9 40	
Lighting buildings,	8 85	
	<hr/>	10,756 15
Middlesex Fells Parkway:—		
Labor,	\$9,324 17	
Teaming,	2,041 25	
Horses, carriages, automobiles, etc.,	602 87	
	<hr/>	\$11,968 29
Watering, or its equivalent,	8,713 17	
Street lighting,	8,621 42	
	<hr/>	
<i>Amounts carried forward,</i>	\$20,302 88	\$89,349 26
		\$255,782 75

<i>Amounts brought forward,</i>		\$29,302 88	\$89,349 26	\$255,782 75
General supplies,		1,130 12		
Labor and supplies, gypsy and brown-tail moth work,		586 76		
Painting Boston & Maine Railroad Bridge,		268 50		
Telephones,		72 80		
Stationery and printing,		25 58		
Water rates,		21 82		
Lighting buildings,		11 70		
Express,		45		
			31,420 61	
Mystic Valley Parkway:—				
Labor,	\$8,912 76			
Teaming,	2,272 00			
Keep of horses,	48 85			
Horses, carriages, automobiles, etc.,	1,293 39			
		\$12,527 00		
Watering, or its equivalent,		9,568 92		
Street lighting,		5,989 15		
General supplies,		1,577 97		
Labor and supplies, gypsy and brown-tail moth work,		1,149 48		
Telephones,		118 79		
Stationery and printing,		23 95		
Water rates,		6 38		
Repairs,		6 31		
			30,967 95	
Revere Beach Parkway:—				
Labor,	\$11,601 26			
Teaming,	28 25			
Horses, carriages, automobiles, etc.,	141 75			
		\$11,771 26		
Watering, or its equivalent,		15,351 32		
Street lighting,		6,405 75		
General supplies,		1,599 22		
Labor and supplies, gypsy and brown-tail moth work,		459 11		
Repairs to Malden River Bridge,		367 17		
Power for draw,		303 75		
Trees and shrubs,		114 07		
Repairs,		112 08		
Lighting buildings,		108 70		
Water rates,		43 85		
Stationery and printing,		14 32		
Flagging during inspection of railroad bridge,		5 40		
Inspection of air tank,		3 00		
			36,659 00	
Neponset River Parkway:—				
Labor,	\$785 00			
Labor and supplies, gypsy and brown-tail moth work,	225 50			
Watering, or its equivalent,	183 00			
General supplies,	53 54			
Shrubs,	13 20			
			1,260 24	
Nahant Beach Parkway:—				
Labor,	\$4,344 90			
Teaming,	34 00			
Keep of horses,	300 49			
Horses, carriages, automobiles, etc.,	114 64			
		\$4,794 03		
Watering, or its equivalent,		990 06		
Street lighting,		981 10		
General supplies,		195 35		
Repairs,		32 66		
			6,993 20	
<i>Amounts carried forward,</i>			\$196,650 26	\$255,782 75

Amounts brought forward, \$196,650 26 \$255,782 75

Fresh Pond Parkway:—

Labor,	\$1,142 88	
Horses, carriages, etc.,	525 23	
	<hr/>	\$1,668 11
Watering, or its equivalent,		829 52
Street lighting,		420 00
Labor and supplies, gypsy and brown-tail moth work,		174 25
	<hr/>	3,091 88

Furnace Brook Parkway:—

Labor,	\$2,444 94	
Teaming,	130 50	
	<hr/>	\$2,575 44
Street lighting,		1,210 98
Watering, or its equivalent,		1,202 50
Labor and supplies, gypsy and brown-tail moth work,		774 45
General supplies,		248 54
Water rates,		14 00
Repairs,		8 60
Lighting buildings,		5 88
Shrubs,		2 80
	<hr/>	6,043 19

Winthrop Parkway:—

Labor,	\$243 00	
Street lighting,	405 35	
Watering, or its equivalent,	201 67	
General supplies,	40 00	
	<hr/>	890 02

Lynnway:—

Labor,	\$4,763 42	
Repairs to Saugus River Bridge,	1,227 43	
General supplies,	576 68	
Street lighting,	334 41	
Power for draw,	324 00	
Repairs,	260 67	
Watering, or its equivalent,	63 84	
Stationery and printing,	32 12	
Trees and shrubs,	19 20	
	<hr/>	7,601 77

Lynn Fells Parkway:—

Labor,	\$2,334 46	
Teaming,	494 00	
Horses, carriages, etc.,	204 73	
	<hr/>	\$3,033 19
Watering, or its equivalent,		5,542 78
Street lighting,		1,638 01
General supplies,		267 57
Labor, gypsy and brown-tail moth work,		49 50
	<hr/>	10,531 05

Middlesex Fells Roads:—

Labor,	\$1,419 10	
Teaming,	396 00	
Horses, carriages, etc.,	2 09	
	<hr/>	\$1,817 19
Watering, or its equivalent,		13,493 24
Street lighting,		2,017 55
General supplies,		96 38
	<hr/>	17,424 36

Amounts carried forward, \$242,232 53 \$255,782 75

Amounts brought forward, \$242,232 53 \$255,782 75

Alewife Brook Parkway:—

Labor,	\$209 25	
Labor and supplies, gypsy and brown-tail moth work,	416 50	
General supplies,	10 71	
		636 46

Woburn Parkway:—

Labor,	\$2,855 47	
Teaming,	573 05	
Horses, carriages, automobiles, etc.,	586 94	
		\$4,015 46
Street lighting,	1,165 42	
General supplies,	469 80	
Labor, gypsy and brown-tail moth work,	334 50	
Trees and shrubs,	288 75	
Loam,	91 20	
Watering, or its equivalent,	78 00	
		6,443 13

West Roxbury Parkway:—

Labor, gypsy and brown-tail moth work,	189 17
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Hammond Pond Parkway:—

Labor and supplies, gypsy and brown-tail moth work,	2,982 50	
		252,483 79

Balance,	\$3,298 96
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CHARLES RIVER BASIN MAINTENANCE.

Maintenance of Park and Water Areas.

Appropriation, Dec. 1, 1915, to Dec. 1, 1916, \$81,200 00

EXPENDITURES.

Labor,	\$22,172 70
Teaming,	234 00
Keep of horses,	830 74
Horses, carriages, automobiles, etc.,	1,031 63
	\$24,319 07

Police:—

Pay rolls,	\$36,840 92
Miscellaneous,	3,245 45

	40,086 37
Street lighting,	4,428 62
General supplies,	4,197 46
Laying granolithic walk on the Embankment,	2,475 11
Lighting buildings,	798 49
Watering, or its equivalent,	762 09
General repairs,	454 85
Repairs to dolphins,	325 00
Telephones,	280 82
Water rates,	236 54
Stationery and printing,	173 16
Fence,	141 17
Drinking fountain,	115 00
Lawn mower,	100 80
Express and freight,	18 71
Expenses on account of bond sales,	9 18
Directory,	6 00
Traveling,	2 15
Miscellaneous,	1 02
	78,931 61

Balance,	\$2,268 39
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Maintenance and Operation of Locks, Gates and Drawbridges.

Appropriation, Dec. 1, 1915, to Dec. 1, 1916, \$51,310 00

EXPENDITURES.

Labor, pay rolls,	\$36,760 14	
Ice breaking,	3,638 25	
Painting lock gates,	1,979 10	
Heating,	1,894 63	
Power for operation of locks, sluices and lights,	1,721 04	
Dredging Lechmere Canal,	1,443 40	
General supplies,	1,243 69	
Repairs to machinery,	829 46	
Lighting lock-gate houses and sluices,	586 59	
Automobile,	361 60	
Telephones,	98 84	
Stationery and printing,	42 76	
Removing rock from Broad Canal,	15 00	
Boiler inspection,	10 00	
Laundry,	7 94	
Towel supply,	4 39	
Transporting pump,	3 09	
Express,	1 50	
Prints and pictures,	1 00	
Traveling,	20	
		50,642 62
Balance,		\$667 33

NANTASKET BEACH MAINTENANCE.

Appropriation, Dec. 1, 1915, to Dec. 1, 1916, \$35,244 14

EXPENDITURES.

Labor,	\$8,215 17	
Teaming,	78 00	
Keep of horses,	402 34	
Horses, carriages, automobiles, etc.,	182 67	
		\$8,878 18
Police: —		
Pay rolls,	\$12,359 24	
Miscellaneous,	3,676 43	
		16,035 67
Watering, or its equivalent,	4,330 32	
General supplies,	1,797 08	
Building bulkhead wall,	1,331 66	
Lighting,	1,158 57	
Rent of superintendent's house,	420 00	
Ash cans,	395 00	
Water rates,	361 75	
Telephones,	174 64	
Stationery and printing,	87 77	
Freight and express,	84 54	
Photographs,	65 00	
Repairs,	58 21	
Trees and shrubs,	32 50	
Traveling,	13 60	
Storage of urns,	7 00	
Drain pipe rental,	6 00	
Shutting off hydrant,	2 60	
Post-office box rent,	1 40	
		35,241 49
Balance,		\$2 65

WELLINGTON BRIDGE MAINTENANCE.

Appropriation, Dec. 1, 1915, to Dec. 1, 1916, \$10,324 84

EXPENDITURES.

Labor,	\$8,158 95	
Teaming,	2 00	
		\$8,160 95
Street lighting,		1,222 20
General supplies,		335 71
Repairs,		67 48
Telephones,		66 11
Stationery and printing,		13 47
Water rates,		9 36
Landscape architects:—		
Services,	\$5 63	
Expenses,	62	
		6 25
Express,		2 01
		<u>9,883 54</u>
Balance,		<u>\$441 30</u>

METROPOLITAN PARKS EXPENSE FUND.

Receipts, Dec. 1, 1915, to Dec. 1, 1916.

Bath-houses:—		
Revere Beach, sale of bath tickets,	\$34,900 65	
Nantasket Beach, sale of bath tickets,	16,937 90	
Nahant Beach, sale of bath tickets,	7,875 30	
Blue Hills, sale of bath tickets,	174 20	
		\$59,888 05
Rentals:—		
Buildings,	\$13,561 32	
Street railway locations,	2,863 74	
Lunch stands and refectories,	2,569 34	
Roller-coaster and merry-go-round,	2,100 00	
Boathouse sites,	1,177 50	
Houses,	1,038 95	
Land,	876 83	
Telephone ducts,	672 62	
Day rental, Riverside Recreation Grounds,	600 00	
Gas main location,	400 00	
Boats,	394 70	
Photographic stand,	250 00	
Pasture,	90 00	
Automobile stands,	75 00	
		26,670 00
Sales:—		
Buildings,	\$2,515 25	
Land,	2,113 00	
Wood,	1,931 75	
Grass,	698 00	
Old metal, rubber, lumber, rags, etc.,	451 30	
Posts,	161 50	
Canoes,	100 00	
Gravel,	95 44	
Sanitary napkins,	84 33	
Barrels,	68 80	
Horse,	65 00	
		<u>\$8,284 37</u>
Amounts carried forward,	\$8,284 37	\$86,558 05

Amounts brought forward, \$8,284 37 \$86,558 05

Sales — Con.

Articles found on reservations,	63 28	
Coal,	50 00	
Ice,	43 77	
Shrubs,	37 16	
Fertilizer,	24 00	
Plans and photographs,	7 86	
Railroad tickets,	5 11	
		8,515 53

Court fines,	\$5,845 80	
Steamer chair and umbrella privileges,	4,440 75	
Teaming permit to contractor,	3,500 00	
Income on money invested,	3,052 24	
Contributions to cost of entrances,	1,195 00	
Boat-letting privilege, etc.,	860 00	
Reimbursement for police expense (strike duty),	556 84	
Refunds and credits,	426 75	
Electric light and water furnished,	239 85	
Removal of garbage,	210 00	
Reimbursement for damage to property,	180 12	
Storage of canoes,	140 00	
Money found on reservations,	94 23	
Reimbursement for expense, M. I. T. outing,	71 46	
Burro and pony privileges,	50 00	
Telephone tolls,	44 33	
Rebate on insurance premium,	39 48	
Pay closets, comfort station,	29 22	
Newspaper licenses,	25 00	
Removing signboards,	22 50	
Installing fence,	21 00	
Replaced keys and checks,	19 75	
Use of steam roller,	10 00	
Payment for lost equipment,	6 48	
Miscellaneous,	12 11	
		21,092 91

	\$116,166 51
Balance, Dec. 1, 1915,	91,652 59
	<u>\$207,819 10</u>

Expenditures.

General expense:—

Laying drain, Nahant Beach Parkway,	\$811 00	
Accountant,	713 40	
Motor cycles,	666 84	
Automobile (part cost),	350 00	
Newsboys' badges,	3 00	
Telephone tolls,	1 00	
		\$2,545 24

Police:—

Horses,	\$1,415 00
Rewiring signal system,	1,263 12
Police expense (strike duty),	581 09
Installing police box,	452 28
Emergency lectures for police,	185 75
Uniforms,	185 00
Electric work, installing mains,	181 00

<i>Amounts carried forward,</i>	\$4,263 24	\$2,545 24	\$207,819 10
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<i>Amounts brought forward,</i>	\$4,263 24	\$2,545 24	\$207,819 10
Rent and care of armory and shooting gallery,	120 66		
Services of drill master,	45 00		
First aid manual,	1 00		
		4,429 90	
Engineering:—			
Telephone,	\$12 28		
		12 28	
Blue Hills Reservation:—			
Addition to headquarters (contract),	\$13,439 30		
Architect,	776 37		
Lockers,	166 68		
Skiffs and oars,	119 60		
Repairs to buildings,	7 05		
Bath-house tickets,	4 50		
Clearing pipe, refectory,	1 50		
		14,515 00	
Middlesex Fells Reservation:—			
Band stand,	\$675 00		
Shrubs,	514 00		
Laying pipe to sheepfold,	305 72		
Changing bear cage,	133 00		
Labor in nursery,	45 88		
Repairs to buildings,	31 48		
Architect,	25 00		
Towels,	19 08		
		1,749 16	
Revere Beach Reservation:—			
Bath-house:—			
Pay rolls,	\$21,384 63		
Bathing suits,	5,036 56		
Coal,	2,695 48		
Towels,	1,149 21		
Lighting,	872 61		
Repairs,	386 44		
Stockings,	382 40		
Engine room,	308 74		
Stationery and printing,	292 59		
Soap, etc.,	228 86		
Water rates,	218 12		
Bathing caps,	204 00		
Medicines and attendance,	169 39		
Ash cans,	168 00		
Hardware,	143 59		
Paint, etc.,	116 93		
Ice,	85 31		
Neck rings,	84 20		
Findings,	68 56		
Hose,	44 00		
Uniforms,	38 06		
Duck, drilling, etc.,	33 92		
Brooms, mops, etc.,	32 00		
Brass polish,	31 60		
Telephones,	31 03		
Fire extinguishers,	17 00		
Spring water,	11 70		
Oil,	10 88		
Express,	8 65		
Brushes and combs,	8 60		
Wrapping paper, etc.,	7 69		
Signs,	7 00		
<i>Amounts carried forward,</i>	\$34,277 75	\$23,251 58	\$207,819 10

<i>Amounts brought forward,</i>	\$34,277 75	\$23,251 58	\$207,819 10
Bath-house — <i>Con.</i>			
Burnishers,	4 75		
Blast furnace,	4 15		
Matches,	3 35		
Dials for watchman's clock,	2 66		
Brass checks,	2 00		
Miscellaneous,	20 89		
	<hr/>	\$34,315 55	
Construction of entrance,	28 25		
Advertising bids,	21 00		
	<hr/>	34,364 80	
Stony Brook Reservation: —			
Repairs to buildings,	\$23 55		
Water rates,	16 00		
	<hr/>	39 55	
Charles River, Upper Division: —			
Patrol boat,	\$591 00		
Water supply and sewerage disposal, recreation grounds,	192 93		
Supplies for patrol boat,	70 55		
Water rates,	40 00		
Landscape architects: —			
Services,	\$36 25		
Expenses,	1 40		
	<hr/>	37 65	
Sewer connection,	18 15		
Report of hearing,	16 00		
Repairs to buildings,	9 40		
	<hr/>	975 68	
Riverside Recreation Grounds: —			
Labor,	\$963 92		
Teaming,	202 50		
	<hr/>	\$1,166 42	
Installing electric work,	850 00		
General supplies,	465 26		
Work on tennis courts,	235 89		
Repairs,	80 16		
Sewer connection,	71 34		
Lighting,	64 00		
Advertising,	45 28		
Telephones,	21 47		
Power,	8 34		
Water rates,	7 50		
	<hr/>	3,015 66	
Charles River, Lower Basin: —			
Waterproofing comfort station,	\$720 00		
Automobile (part cost),	226 00		
Portable stand,	160 00		
Appraising property and report,	100 00		
Acme sweeper (part cost),	88 34		
Shrubs and shrub beds,	80 45		
Refund on account of deposit for entrance,	46 00		
Towels,	11 35		
Landscape architects, services,	10 00		
	<hr/>	1,442 14	
Mystic River Reservation: —			
Landscape architects: —			
Services,	\$39 25		
Expenses,	2 50		
	<hr/>	41 75	
<i>Amounts carried forward,</i>		\$63,131 16	\$207,819 10

<i>Amounts brought forward,</i>		\$63,131 16	\$207,819 10
Lynn Shore Reservation:—			
Repairs to sea wall,		\$65 75	
Landscape architects:—			
Services,	\$57 00		
Expenses,	70		
		57 70	
Report of hearing,		37 50	
Construction of entrance,		24 50	
Advertising bids,		9 33	
Refund on account of deposit for entrance,		3 75	
			198 53
Quincy Shore Reservation:—			
Landscape architects:—			
Services,	\$74 73		
Expenses,	24		
		\$74 97	
Advertising bids,		5 70	
Copy of deed,		2 00	
			82 67
Winthrop Shore Reservation:—			
Automobile (part cost),		\$400 00	
Refund on account of deposit for entrance,		41 25	
Construction of entrance,		8 75	
			450 00
Blue Hills Parkway:—			
Construction of entrances,		\$390 75	
Refund on account of deposit for entrance,		19 25	
			410 00
Middlesex Fells Parkway:—			
Construction of entrance,		\$64 92	
Refund on account of deposit for entrance,		20 16	
			85 08
Mystic Valley Parkway:—			
Construction of entrance,		\$78 55	
Landscape architects:—			
Services,	\$56 45		
Expenses,	2 10		
		58 55	
Repairs to buildings,		18 92	
			156 02
Revere Beach Parkway:—			
Construction of entrance,		\$205 00	
Landscape architects, services,		63 30	
			268 30
Nahant Beach Parkway:—			
Bath-house:—			
Pay rolls,	\$5,040 50		
Towels,	296 10		
Stockings,	252 90		
Repairs,	251 73		
Lighting,	224 00		
Coal,	188 00		
Paint, etc.,	127 02		
Matting,	121 61		
Hardware,	105 55		
Laundry baskets,	103 00		
Telephones,	80 90		
Bathing caps,	60 00		
Lumber, etc.,	56 00		
<i>Amounts carried forward,</i>	\$6,907 31	\$64,781 76	\$207,819 10

<i>Amounts brought forward,</i>	\$6,907 31	\$64,781 76	\$207,819 10
Bath-house — Con.			
Tickets,	52 80		
Flags and bunting,	51 00		
Doors,	35 00		
Uniforms,	23 88		
Brooms, dust pans, etc.,	23 46		
Laundry,	23 44		
Medicines and attendance,	18 10		
Findings,	17 18		
Ice,	15 12		
Engine room,	14 23		
Brushes and combs,	11 00		
Soap, etc.,	10 40		
Oil,	8 75		
Bathing checks,	6 75		
Stationery,	5 50		
Field glass,	3 29		
Miscellaneous,	11 88		
	<hr/>		
	\$7,239 09		
Laying drain,	400 00		
Advertising bids,	10 20		
	<hr/>		
		7,649 29	
Fresh Pond Parkway: —			
Construction of entrance,	\$200 93		
Landscape architects: —			
Services,	\$41 60		
Expenses,	2 32		
	<hr/>		
	43 92		
		244 85	
Furnace Brook Parkway: —			
Construction of entrance,	\$30 00		
	<hr/>		
		30 00	
Lynnway: —			
Landscape architects, services,	\$25 00		
	<hr/>		
		25 00	
Lynn Fells Parkway: —			
Construction of entrance,	\$275 51		
Acme sweeper (part cost),	88 33		
Refund on account of deposit for entrance,	9 49		
Certified copy,	1 54		
	<hr/>		
		374 87	
Alewife Brook Parkway: —			
Patrol boat supplies,	\$441 03		
Acme sweeper (part cost),	88 33		
	<hr/>		
		529 36	
Old Colony Parkway: —			
Posters,	\$14 83		
Repairs to buildings,	14 38		
	<hr/>		
		29 21	
Nantasket Beach Reservation: —			
Bath-house: —			
Pay rolls,	\$8,991 89		
Repairs and alterations,	5,807 80		
Bathing suits,	3,308 01		
Coal,	1,175 58		
Water rates,	638 83		
Towels,	621 49		
Engine room,	406 02		
Stationery and printing,	251 25		
	<hr/>		
<i>Amounts carried forward,</i>	\$21,200 87	\$73,664 34	\$207,819 10

<i>Amounts brought forward,</i>		\$21,200 87	\$73,664 34	\$207,819 10
Bath-house — <i>Con.</i>				
Stockings,	.	.	.	210 00
Safety barrels,	.	.	.	200 00
Paint, etc.,	.	.	.	197 81
Hardware,	.	.	.	145 44
Matting,	.	.	.	110 71
Soap, etc.,	.	.	.	103 14
Lighting,	.	.	.	102 51
Typewriter,	.	.	.	91 13
Findings,	.	.	.	85 51
Bathing caps,	.	.	.	75 54
Duck,	.	.	.	73 26
Toilet paper,	.	.	.	59 80
Ice,	.	.	.	58 49
Medicines and attendance,	.	.	.	56 62
Apportioning steam charges,	.	.	.	35 00
Telephones,	.	.	.	29 95
Tickets,	.	.	.	29 78
Bathing checks and rings,	.	.	.	21 54
Laundry baskets,	.	.	.	16 00
Lumber, etc.,	.	.	.	15 17
Uniforms,	.	.	.	13 69
Boat cover,	.	.	.	11 25
Dust pans, etc.,	.	.	.	5 15
Brass polish,	.	.	.	3 95
Miscellaneous,	.	.	.	9 26
			\$22,961 57	
Moving over office,	.	.	.	1,985 42
Architects,	.	.	.	1,334 83
Changes in steam piping,	.	.	.	991 44
Engineer's services,	.	.	.	363 00
Repairs to buildings,	.	.	.	351 15
Shore protection,	.	.	.	221 98
Fireproofing ceilings,	.	.	.	217 30
Electrical work in café,	.	.	.	203 50
Fire service,	.	.	.	100 00
Columns for café,	.	.	.	60 00
Expenses of M. I. T. celebration (part),	.	.	.	51 46
Cooks' table, café,	.	.	.	41 25
Settlement of claim,	.	.	.	25 00
Advertising bids,	.	.	.	17 70
Shrubs,	.	.	.	10 20
Key blanks,	.	.	.	52
			28,936 32	
				102,600 66
Balance, Dec. 1, 1916,	.	.	.	\$105,218 44

METROPOLITAN PARKS TRUST FUND.

Balance, Dec. 1, 1916, \$11,397 63

Summary of General Expense for Year ending Nov. 30, 1916.

	Parks System Maintenance.	Parks Boule- vard Maintenance.	Parks Ex- pense Fund.	Parks Loan Fund.	Parks Loan Fund, Series II.	Total.
Commissioners,	\$3,450 00	\$3,450 00	-	-	-	\$6,900 00
Office salaries,	10,113 28	10,528 39	-	-	-	20,641 67
Engineering,	9,798 60	9,798 90	\$12 28	-	-	19,609 78
Police,	119,596 85	47,698 57	4,429 90	-	-	171,725 32
Rent and care, Boston office,	3,547 94	2,877 10	-	-	-	6,425 04
Lighting, Boston office,	97 00	139 86	-	-	-	236 86
Miscellaneous,	4,041 83	4,100 29	1,076 40	-	-	9,218 52
Totals,	\$150,645 50	\$78,593 11	\$5,518 58	-	-	\$234,757 19

Summary of Expenditures for Year ending Nov. 30, 1916.

	Metropoli- tan Parks Loan Fund.	Metropoli- tan Parks Loan Fund, Series II.	Metropoli- tan Parks System Main- tenance.	Metropoli- tan Parks Boulevard Main- tenance.	Metropoli- tan Parks Expense Fund.	Special Ap- propriations, Repairs, Construc- tion and Investiga- tions.	Band Concerts.	Totals.
Reservations: —								
Blue Hills,	—	—	\$94,190 28	—	\$14,515 00	—	\$1,990 06	\$110,695 34
Beaver Brook,	—	—	3,503 74	—	—	—	330 00	3,833 74
Charles River, Upper Division,	\$100,239 53	—	43,534 35	—	975 68	\$30,053 65	2,396 98	177,250 19
Lynn Shore,	—	—	9,897 45	—	198 53	2,569 32	—	12,665 30
Middlesex Fells,	52 00	—	59,186 90	—	1,749 16	2 08	5,157 88	66,148 02
Mystic River,	350 00	—	13,542 96	—	41 75	—	—	13,934 71
Neponset River,	—	—	2,434 20	—	—	—	—	2,434 20
Quincy Shore,	1 44	—	7,651 51	—	82 67	18 38	—	7,754 00
Revere Beach,	—	—	34,263 91	—	34,364 80	44,454 68	8,624 84	121,708 23
Riverside Recreation Grounds,	—	—	3,184 15	—	3,015 66	—	646 70	6,846 51
Stony Brook,	—	—	7,032 92	—	39 55	—	—	7,072 47
Winthrop Shore,	—	—	3,132 00	—	450 00	—	—	3,582 00
Weston Bridge,	38,638 50	—	—	—	—	—	—	38,638 50
General expense,	3,601 10	—	150,645 50	—	—	{ 3,260 00 ¹ 9,773 16 ²	22 03	167,301 79
Totals,	\$142,932 57	—	\$432,199 87	—	\$55,432 80	\$90,131 27	\$19,168 49	\$739,865 00

Parkways:—

Alewite Brook, . . . . .	.	.	.	.	.	.	.	.	.	28,071 84	-	-	636 46	529 36	-	-	-	29,237 66
Blue Hills, . . . . .	.	.	.	.	.	.	.	.	.	-	-	-	10,756 15	410 00	-	-	-	11,166 15
Dedham, . . . . .	.	.	.	.	.	.	.	.	.	10,626 82	-	-	-	-	-	-	-	10,626 82
Fresh Pond, . . . . .	.	.	.	.	.	.	.	.	.	115 84	-	-	3,091 88	244 85	-	-	-	3,452 57
Furnace Brook, . . . . .	.	.	.	.	.	.	.	.	.	63,496 91	-	-	6,043 19	30 00	-	-	-	77,956 19
Hammond Pond, . . . . .	.	.	.	.	.	.	.	.	.	46,175 97	-	-	2,982 50	-	-	-	-	49,158 47
Lynn Fells, . . . . .	.	.	.	.	.	.	.	.	.	4 96	-	-	10,531 05	374 87	-	-	-	10,910 88
Lynnway, . . . . .	.	.	.	.	.	.	.	.	.	-	-	-	7,601 77	25 00	-	-	-	7,626 77
Middlesex Fells, . . . . .	.	.	.	.	.	.	.	.	.	2,781 35	-	-	31,420 61	85 08	-	-	-	34,287 04
Middlesex Fells Roads, . . . . .	.	.	.	.	.	.	.	.	.	-	-	-	17,424 36	-	-	-	-	17,424 36
Mystic Valley, . . . . .	.	.	.	.	.	.	.	.	.	9,889 75	-	-	30,967 95	156 02	-	-	-	41,013 72
Nahant Beach, . . . . .	.	.	.	.	.	.	.	.	.	-	-	-	6,993 20	7,649 29	-	1,914 55	-	10,557 04
Neponset River, . . . . .	.	.	.	.	.	.	.	.	.	-	-	-	1,260 24	-	-	-	-	1,260 24
Old Colony, . . . . .	.	.	.	.	.	.	.	.	.	153,505 86	-	-	-	29 21	-	-	-	153,535 07
Quannapowitt, . . . . .	.	.	.	.	.	.	.	.	.	7,708 29	-	-	-	-	-	-	-	7,708 29
Revere Beach, . . . . .	.	.	.	.	.	.	.	.	.	15 50	-	-	36,659 00	268 30	-	-	-	36,942 80
West Street, Braintree, . . . . .	.	.	.	.	.	.	.	.	.	16 64	-	-	-	-	-	-	-	16 64
West Roxbury, . . . . .	.	.	.	.	.	.	.	.	.	199 42	-	-	189 17	-	-	-	-	536 41
Winthrop, . . . . .	.	.	.	.	.	.	.	.	.	50,847 39	-	-	890 02	-	-	-	-	51,737 41

¹ Pensions.² Apportionment Commission.

Summary of Expenditures for Year ending Nov. 30, 1916 — Concluded.

	Metropoli- tan Parks Loan Fund.	Metropoli- tan Parks Loan Fund, Series II.	Metropoli- tan Parks System Main- tenance.	Metropoli- tan Parks Boulevard Main- tenance.	Metropoli- tan Parks Expense Fund.	Special Ap- propriations, Repairs, Construc- tion and Investiga- tions.	Band Concerts.	Totals.
Parkways — <i>Con.</i>								
Woburn,	-	-	-	\$6,443 13	-	-	-	\$6,443 13
Neponset Bridge,	-	\$1,505 83	-	-	-	-	-	1,505 83
General expenses,	-	-	-	78,593 11	\$6,987 42	-	-	85,580 53
Totals,	-	\$379,962 37	-	\$252,483 79	\$16,789 40	\$8,533 91	\$1,914 55	\$659,684 02
Nantasket Beach Reservation,	-	-	-	-	28,936 32	35,241 49 ¹	6,831 00	71,008 81
Wellington Bridge,	-	7,718 75	-	-	-	9,883 54 ¹	-	17,602 29
Charles River Basin,	-	-	-	-	1,442 14	61,225 17 ² 129,574 23 ¹	1,147 60	193,389 14
North Beacon Street Bridge Loan,	-	-	-	-	-	78,797 51	-	78,797 51
Grand totals,	\$142,932 57	\$387,081 12	\$432,199 87	\$252,483 79	\$102,600 66	\$413,387 12	\$29,061 64	\$1,760,346 77

¹ Maintenance.² Loan.

Metropolitan Park System—Dec. 1, 1916.

[illegible]

APPENDIX.

APPENDIX 1.

REPORT OF THE JOINT COMMITTEE, CONSISTING OF THE MASSACHUSETTS HIGHWAY COMMISSION AND THE METROPOLITAN PARK COMMISSION, REQUIRED BY CHAPTER 109 OF THE RESOLVES OF THE YEAR 1916 TO REPORT AS TO CONSTRUCTION OF A STATE HIGHWAY IN THE CITY OF SOMERVILLE.

To the Honorable Senate and House of Representatives.

The joint committee, consisting of the Massachusetts Highway Commission and the Metropolitan Park Commission, required by chapter 109 of the Resolves of the year 1916 to report as to construction of a State highway in the city of Somerville, beg leave to report as follows.

The resolve, chapter 109 of 1916, under which this report is made is as follows: —

CHAPTER 109.

RESOLVE PROVIDING FOR AN INVESTIGATION BY THE MASSACHUSETTS HIGHWAY COMMISSION AND THE METROPOLITAN PARK COMMISSION AS TO THE CONSTRUCTION OF A STATE HIGHWAY IN THE CITY OF SOMERVILLE.

Resolved, That the Massachusetts highway commission and the metropolitan park commission shall investigate the matter of constructing and thereafter maintaining a state highway, not less than sixty feet wide, from some point at or near Broadway Park in the city of Somerville to the Cambridge line at or near Columbia street, either by improving and enlarging a present highway or by constructing a new highway. The commission shall estimate the cost of said highway and determine the best situation therefor, and shall report to the next general court on the first Wednesday in January. [*Approved May 19, 1916.*]

In pursuance of this resolve the two Boards met and organized as a Joint Board, June 14, 1916, by electing the chairman of the Highway Commission as chairman of the Joint Board and the secretary of the Highway Commission as secretary and the engineers of the two Boards as engineers of the Joint Board.

Broadway Park, named in the resolve, is a park of the city of Somerville bounded by Broadway and Mystic Avenue, both main

highways to Boston by way of Charlestown, and by roadways of Middlesex Fells Parkway of the Metropolitan Park System, over which, also, Revere Beach Parkway and Mystic Valley Parkway travel passes on its way to and from Boston. Close by is Middlesex Avenue, a main teaming route north to the cities and towns beyond Mystic River. Columbia Street, named in the resolve, is a highway of Cambridge, which, starting near the Somerville line a little over a mile from Broadway Park, runs to Massachusetts Avenue, which, by Harvard Bridge over Charles River, gives the only direct communication with Boston west of the crowded down-town business section, and with the cities and towns beyond Charles River west and south of Boston. Columbia Street and other near-by parallel streets give reasonably ample and direct highway accommodations for present travel north from Harvard Bridge as far as the Cambridge-Somerville line. Just beyond the Cambridge-Somerville line these highways unite with Webster Avenue and Prospect Street and cross the railroads by two bridges so near together as to be practically one. From this point, as far as Broadway Park, there are no adequate or direct main highways, and all travel must find and make use of secondary local streets, which, because of indirectness, dangerous grades and obstructed view of intersecting main highways, are inadequate and dangerous.

The purpose of the resolve requiring this report is therefore very evidently that of requiring investigation and report as to providing a highway not less than 60 feet in width between Broadway Park and Columbia Street as a means of improving the highway facilities between Charles River and Mystic River by a more ample and direct highway than now exists in the portion of the distance in which present highways are inadequate; and the Joint Board, while confining its report to the limits prescribed by the resolve, has of necessity reached its conclusions after investigation of the extent to which improvement within the prescribed limits would improve highway facilities all the way from Charles River at Harvard Bridge and Massachusetts Avenue to Mystic River at Wellington Bridge.

For many years great public inconvenience has been caused by the indirectness and unsuitableness of existing highways between Harvard Bridge and Wellington Bridge, and this has been accompanied by serious danger since automobiles came into general use. In the section between the Cambridge-Somerville line and Broadway Park, the inconvenience and danger have become

more acute each year and have led to almost yearly petitions to the Legislature for relief. This has been frequently referred to in reports of the Metropolitan Park Commission, and suggestions and estimates for relief by a new road either in form of a parkway or in form of a highway ample enough to provide for automobiles and other sorts of travel have been made, sometimes on its own initiative and sometimes in reports required by the Legislature. At one time the Legislature authorized expenditure for such a parkway or highway, but this authority failed to become law because of veto by the Governor based upon objection to an increase at that time of the already large expenditures for Metropolitan Parks. In 1909 the Metropolitan Improvements Commission, a special commission appointed under authority of the Legislature, reported upon and urged the building of a main highway between Harvard Bridge and Wellington Bridge as of the highest importance as a radial highway from Boston. In 1911 the Joint Board on Metropolitan Improvements, consisting of the Railroad Commission, the Boston Transit Commission, the Harbor and Land Commission, and the Metropolitan Park Commission, to whom the previous report of the Metropolitan Improvements Commission had been referred, also reported and recommended plans for such a main radial highway upon practically the lines now indicated by the resolve under which this report is made.

These facts are sufficient to indicate that there is a pronounced public wish for better accommodations for travel between these points, and make it unnecessary for this Board to add anything to emphasize this phase of the matter, except to say that, in its opinion, both necessity and public desire for this improvement increase from year to year and will not rest satisfied until some reasonable measure of relief is accomplished. It may also be said that there is probably no place where so large a volume of long-distance travel as must pass between the Harvard Bridge and Wellington Bridge is so inadequately provided for.

Consideration of previous reports and of action thereon warrants the conclusion that the reason why relief has not already been afforded in this matter is because of the expense involved. This expense, however, will never be less and will now be greater than if it had been authorized even a few years ago, because the region is one in which inexpensive buildings are being replaced by larger and more expensive ones.

The portion of the distance between Charles River and Mystic

River which is made the limit of this report is that in which relief is most needed. The fact that this report is required to be confined to this limit indicates a desire to provide such measure of relief as will be within the financial ability and willingness of those who must pay for it, and the matter has been investigated in this spirit.

Investigations conducted by this Board have involved a careful study of previous reports and plans, an examination of the entire region and of the character and value of land and buildings with a view to laying out a direct and comfortable highway between the points named at the least possible expense, and in such a way as to make use of existing streets and to connect with other streets which may suffice to provide improved lines of travel over the entire distance. As a result, the conclusion has been reached that it is feasible to lay out and build a continuous new highway not less than 60 feet in width, with easy grades from the highways and parkways which unite at Broadway Park to Columbia Street near the Cambridge line and thereby make good connection with Columbia Street and with other streets not less than 50 feet in width leading to the Harvard Bridge and also to Cambridge Bridge and to the dam at Craigie Bridge. The general line which is likely to be the least expensive is one substantially like that suggested by the previous report of the Joint Board on Metropolitan Improvements, but diverging from it at a few points for reasons of safety in crossing main highways and for economy in cost of land and construction. To save remaking plans, the plan of the Joint Board is therefore referred to as being sufficient to indicate the streets and bridges and the general line of construction recommended by this Board.

Careful estimates prepared by the engineers of the Joint Board give warrant for the belief that the necessary land for the highway recommended from Broadway Park to the Cambridge line at or near Columbia Street and to a connection with Columbia Street may now be acquired for a sum not exceeding \$550,000, and that construction within the same limits will cost approximately \$450,000. The cost of land and construction at the greater width of 80 feet will be relatively less than at 60 feet and may be accomplished for the sum of \$1,220,000.

The Joint Board is of the opinion that the public benefit which will result from the building of the highway between the points required for this investigation and on the lines substantially as indicated by this report warrant the expenditure involved, and

therefore recommends immediate legislation to provide the necessary funds and authority. Much consideration has been given to the method of providing for acquirement of land and construction of this highway, for its subsequent maintenance, and also to the matter of an equitable distribution of the first cost and that of maintenance. As bearing upon this part of the question the following facts have been taken into consideration. The highway, if confined to the limits stated in the bill requiring this report, will be wholly within the city of Somerville, and, if extended to an actual connection with Columbia Street, only for a short distance within the city of Cambridge. It will, of necessity, cross many city streets and at some points incorporate these streets with it. It will have to provide for all classes of travel. When completed the highway will be to all practical purposes a rather broad city street, and its maintenance will involve all the problems of local city sewerage, water and other service pipes and wires, and the policing necessarily incident to all these purposes. While the highway will be built more for the accommodation of State-wide, county and district travel than for the local travel of the city of Somerville or of Cambridge, the care and maintenance of the highway will be almost undistinguishable from that of other highways of the city, and may be more easily and economically accomplished by the cities in which it is located than by any other public authority. The acquirement of land for this highway will involve the acquirement of many small properties and the settlement of a correspondingly large number of claims. The construction will be a problem of highway construction that will involve incidental matters of adjustment to surrounding situations. The laying out of the highway will require careful designing and special expert advice.

The Joint Board, therefore, makes the following recommendations: —

That the Joint Board be continued for the purpose of planning, acquiring land for and constructing this highway and its connections with streets of the cities in which it is located as approaches thereto, with power to require relocations of all pipes and structures and to grant relocations for the same as incident to construction, all in the name of the Commonwealth; and, upon completion of the work, to convey the land and transfer the highway to the city of Somerville for care, control and maintenance, subject, however, to the approval of the Highway Com-

mission as to changes and alterations in the same and the granting of permits and licenses within the same which may be made by the city of Somerville; that the funds for the acquirement of land and cost of construction be provided by the Commonwealth under a special loan and repaid to the Commonwealth, 15 per cent. by the city of Somerville, 25 per cent. by the county of Middlesex, and the balance by the cities and towns which now contribute to the Metropolitan Parks Loan, Series Two, Sinking Fund in the same proportions as are provided by law for the repayment of that loan, that is, one-half by the cities and towns of the Metropolitan District, leaving the remaining one-half of this balance to be borne by assessment upon the Commonwealth at large; that, upon completion and transfer to the city of Somerville, the maintenance, including lighting, policing, cleaning and repairing, be done by that city at its own expense.

A bill for carrying out these recommendations accompanies this report.

All of which is respectfully submitted.

WM. D. SOHIER,
F. D. KEMP,
JAMES W. SYNAN,

Massachusetts Highway Commission.

WILLIAM B. DE LAS CASAS,
EDWIN U. CURTIS,
ELLERTON D. WHITNEY,
EVERETT C. BENTON,
CHARLES J. BARTON,

Metropolitan Park Commission.

APPENDIX.

AN ACT TO AUTHORIZE THE CONSTRUCTION OF A HIGHWAY FROM BROADWAY PARK, SOMERVILLE, TO THE CAMBRIDGE-SOMERVILLE LINE.

1 SECTION 1. The members of the Massachusetts highway
2 commission and the metropolitan park commission are hereby
3 authorized and directed to act together as a joint board, to
4 be known as the Somerville-Cambridge highway board, for
5 the purpose of acquiring lands and rights in lands for and of
6 constructing a highway or street from Broadway park in the
7 city of Somerville to the Cambridge-Somerville line near
8 Columbia street in the city of Cambridge. Said joint board
9 may have its office at such one of the offices occupied by
10 either of said boards individually in the city of Boston as
11 said joint board may determine. Said joint board may em-
12 ploy such clerks, stenographers, engineers and other employees,
13 and experts as it may deem necessary to carry out the pro-
14 visions of this act, and also such legal assistants as the
15 attorney-general may approve.

1 SECTION 2. Said joint board is hereby authorized to take
2 in fee or otherwise, in the name of the commonwealth, by
3 purchase, or eminent domain, land and rights in lands, in-
4 cluding parts of streets or ways necessary to provide a street
5 or way not less than sixty nor more than eighty feet in width
6 from a point at or near Broadway park in the city of Somer-
7 ville, and to relocate connecting or intersecting streets or
8 ways, to the Cambridge-Somerville line near Columbia street
9 in the city of Cambridge, and shall construct on the lands so
10 taken and between said points a public highway or street,
11 not less than sixty nor more than eighty feet in width.

1 SECTION 3. Said joint board shall estimate and determine
2 as near as may be all damages sustained by any person or
3 corporation by the taking of land, or any right therein, under
4 this act; but any one aggrieved by such determination of the
5 joint board may have such damages assessed by a jury of the
6 superior court, in the same manner as is provided by law with
7 respect to damages sustained by reason of the laying out of
8 ways. If upon trial damages are increased beyond the award

9 of the joint board, the aggrieved party shall recover costs,
10 otherwise such party shall pay costs; and costs shall be taxed
11 as in civil cases; but no suit for such damages shall be brought
12 after the expiration of one year from the date of the recording
13 of the taking, as required by the following section.

1 SECTION 4. Within sixty days after any land, or right
2 therein, is acquired or taken under this act, the joint board
3 shall file and cause to be recorded in the proper registry of
4 deeds, a description thereof sufficiently accurate for its iden-
5 tification, with a statement of the purpose for which the
6 same is acquired or taken, which description shall be signed
7 by a majority of said joint board.

1 SECTION 5. Said joint board shall have the same authority
2 to determine the value of, and assess upon real estate the
3 amount of betterments accruing to, said real estate by the
4 locating and laying out of the street or way herein author-
5 ized, and the relocating, widening, altering or changing the
6 grade of any connecting or intersecting street or way, as is
7 conferred by chapter fifty of the Revised Laws upon boards
8 of city or town officers authorized to lay out streets or ways,
9 and the provisions of the first eight sections of said chapter,
10 relating to ways, shall apply to such assessments by said
11 joint board: *provided, however,* that no assessment shall be
12 made upon any real estate except such as abuts upon said
13 street or way from the laying out, relocating, widening, alter-
14 ing or changing the grade of which the betterment accrues;
15 and *provided, further,* that no betterment or damages shall
16 be assessed upon or paid to the city of Somerville under this
17 act. Said joint board shall also have full power and authority
18 to abate such proportion of any assessment for betterments
19 made by it hereunder as it shall deem just and expedient; or
20 to enter into agreements providing for the abatement of such
21 assessments or the assumption and payment of the same by
22 the commonwealth; and to authorize the treasurer and re-
23 ceiver-general of the commonwealth to refund to the proper
24 person or persons the amount of such abatement of any
25 assessment already paid.

1 SECTION 6. In every case where the betterment tax has
2 been assessed under the provisions of this act, the treasurer

3 and receiver-general of the commonwealth may maintain an
4 action of contract in his own name against the owner of said
5 real estate at the date of the taking by reason of which said
6 betterments accrue for the amount of said tax, and the ex-
7 penses of prosecuting any such action shall be paid out of the
8 funds herein provided for to meet the expenses of said joint
9 board.

1 SECTION 7. Said joint board shall have authority to sell
2 at public or private sale any buildings or parts or materials of
3 buildings taken or acquired in carrying out the provisions of
4 this act, or any lands or rights in lands purchased or acquired
5 for the purpose of this act which may be found not to be
6 required for purposes of construction.

1 SECTION 8. Any money collected or received in payment
2 of betterment tax assessed under this act, or from the sale of
3 buildings or parts thereof or of lands or otherwise, shall be
4 transmitted to the treasurer and receiver-general and be by
5 him credited to the sinking fund of the bonds or scrip of in-
6 debtedness issued by him as hereinafter authorized to provide
7 for expenditures of said joint board under this act.

1 SECTION 9. Said joint board may relocate, widen, alter,
2 change the grade of and reconstruct so much of any street
3 or way intersecting or connecting with the highway herein
4 authorized as said joint board may deem necessary to carry
5 out the provisions of this act. Any person whose property is
6 damaged by the relocation, widening, altering or changing of
7 grade of an intersecting or connecting street or way, as above
8 provided, may have such damages assessed by a jury of the
9 superior court in the same manner as is provided by law with
10 respect to damages sustained by reason of the laying out of
11 ways, provided that no suit for such damages shall be brought
12 after the expiration of one year from the day when the work
13 is actually commenced on the intersecting or connecting
14 street or way. Any damages recovered hereunder shall be
15 paid as a part of the cost of carrying out the provisions of
16 this act.

1 SECTION 10. Any change in water, sewer or gas pipes
2 made necessary by the change in grade of any of such streets

3 shall, if said joint board so orders, be made by the city of
4 Somerville or such department thereof as has the ownership
5 or control of the same, and the reasonable cost of such changes
6 shall be paid by the commonwealth as a part of the cost of
7 carrying out the provisions of this act. Said joint board may
8 change the location of the tracks of any street railway com-
9 pany on any part of a street taken, relocated, widened or the
10 grade of which is changed hereunder to a new location on
11 such street; and when the work of such relocation of tracks
12 shall have been completed, such street railway company shall
13 hold the same in lieu of and upon the same terms and con-
14 ditions as its former location.

1 SECTION 11. After the completion of the work authorized
2 by this act, said joint board shall convey to the city of Som-
3 erville any lands taken hereunder upon which the street or
4 way herein authorized shall have been constructed or taken
5 for the relocation, altering, widening or changing the grade
6 of any intersecting street or way hereunder, to be maintained
7 as public streets or ways by said city, with all the liabilities
8 and powers in respect to the same now imposed or conferred
9 upon said city by law in respect to the maintenance of other
10 city streets. After said conveyance to said city of Somer-
11 ville, said city shall maintain said streets and ways and keep
12 the same in repair as public streets or ways of the city of
13 Somerville, and thereafter no water, sewer, or gas mains shall
14 be laid in said streets, and no locations for telephone or tele-
15 graph poles, wires and conduits, or street railway locations
16 shall be granted on or under any street or way located on
17 land so conveyed, except in such manner and under such
18 conditions as shall be approved by the Massachusetts highway
19 commission.

1 SECTION 12. For the purpose of carrying out the provi-
2 sions of this act, said joint board may expend a sum not
3 exceeding one million, two hundred twenty thousand dollars.
4 To meet the expenses incurred under the provisions of this
5 act, the treasurer and receiver-general is hereby authorized,
6 with the approval of the governor and council, to issue serial
7 bonds or certificates of indebtedness to an amount not ex-
8 ceeding one million, two hundred twenty thousand dollars,
9 in addition to the amounts already authorized under the

10 provisions of chapter two hundred and eighty-eight of the acts
11 of the year eighteen hundred and ninety-four and acts in
12 amendment thereof and in addition thereto, and as part of
13 the Metropolitan Parks Loan, Series Two. Such bonds or
14 certificates of indebtedness shall be issued as coupons or
15 registered bonds, and shall bear interest at a rate not exceed-
16 ing four per cent per annum, payable semi-annually on the
17 first days of January and July of each year.

1 SECTION 13. The cost of the work authorized by this
2 act together with interest on any money borrowed shall be
3 paid as follows: fifteen per cent by the city of Somerville,
4 twenty-five per cent by the county of Middlesex, and sixty
5 per cent in the same manner as expenditures made from
6 appropriations authorized to carry out the provisions of
7 chapter two hundred eighty-eight of the acts of the year
8 eighteen hundred ninety-four, and acts in amendment thereof
9 and in addition thereto.

1 SECTION 14. The treasurer and receiver-general shall,
2 beginning in the year nineteen hundred and seventeen, in-
3 clude in the sum charged to the city of Somerville in the
4 apportionment and assessment of its state tax such propor-
5 tion of the amount to be paid by said city as may be neces-
6 sary to provide for the payment of the serial bonds maturing
7 on the first day of the following January, together with the
8 amount necessary to provide for the proportion of the interest
9 requirements to be paid by said city. The treasurer and
10 receiver-general shall annually assess upon the county of
11 Middlesex such proportion of the amount to be paid by said
12 county as may be necessary to provide for the payment of
13 the serial bonds maturing on the first day of the following
14 January, together with the amount necessary to provide for
15 the proportion of the interest requirements to be paid by said
16 county. The remaining requirements for serial bonds and
17 interest payments, and for the maintenance of said street or
18 way, not herein provided for shall be determined, collected
19 and paid in the manner set forth in chapter four hundred
20 and nineteen of the acts of the year eighteen hundred and
21 ninety-nine, to meet the interest and sinking fund require-
22 ments of loans or appropriations authorized to carry out the
23 purposes of chapter two hundred and eighty-eight of the acts

24 of the year eighteen hundred and ninety-four and acts in
25 amendment thereof and in addition thereto, and to meet the
26 expenses of the care and maintenance of metropolitan boulevards
27 and parkways.

1 SECTION 15. The treasurer of the city of Somerville, on
2 the request of the mayor thereof, shall from time to time
3 issue bonds as it may require, and such bonds may be in
4 excess of the statutory limit of indebtedness. Each bond shall
5 be designated on the face thereof, Somerville-Cambridge
6 Highway Loan, and the proceeds shall be used by said city
7 to meet the cost to be paid by it under this act. The said
8 bonds shall bear interest, payable semi-annually, at a rate
9 not exceeding four per cent per annum, and shall be payable
10 at such times, not less than ten nor more than forty years
11 from their respective dates as shall be determined by the
12 treasurer and mayor of the city of Somerville, and as shall be
13 expressed upon the face of the bonds. The provisions of
14 chapter twenty-seven of the Revised Laws and acts in amend-
15 ment thereof and in addition thereto, so far as they may be
16 applicable and are consistent herewith, shall apply to the
17 bonds issued under the authority of this act. The county of
18 Middlesex may, if the county commissioners believe it ad-
19 visable to do so, borrow money for a period not exceeding
20 ten years for the purpose of meeting assessments under this
21 act, and the treasurer of said county is authorized, on the
22 order of said commissioners, to issue bonds or notes for that
23 purpose, bearing not more than four per cent interest.

APPENDIX 2.

REPORT OF THE METROPOLITAN PARK COMMISSION RELATIVE
TO THE ADVISABILITY OF ACQUIRING LAND IN EVERETT FOR
PARK PURPOSES.

To the Honorable Senate and House of Representatives.

The Metropolitan Park Commission submits the report required by chapter 82 of the Resolves of 1916, regarding the advisability and cost of acquiring for park purposes land lying between Main Street, Broadway and the Revere Beach Boulevard in the city of Everett.

The resolve, chapter 82 of 1916, is as follows:—

CHAPTER 82.

RESOLVE PROVIDING FOR AN INVESTIGATION RELATIVE TO THE ADVISABILITY OF TAKING CERTAIN LAND IN EVERETT FOR PARK PURPOSES.

Resolved, That the metropolitan park commission be directed to investigate and report to the next general court, on or before the second Monday in January, as to the advisability and cost of acquiring for park purposes land lying between Main street, Broadway and the Revere beach boulevard in the city of Everett. [*Approved May 10, 1916.*]

The piece of land referred to is a triangular piece bounded by Revere Beach Boulevard on the north, and by Main Street and Broadway, highways of the city of Everett, which converge as they pass the land in question and become Main Street, passing over the Eastern Division tracks of the Boston & Maine Railroad to Boston by way of Malden bridge and Charlestown. This piece of land was part of a tract in single ownership, over which the boulevard was built crossing Main Street and Broadway. Subsequently it was cut into again by the relocating and reconstruction of Main Street and Broadway in connection with the abolishment of the grade crossing of Main Street over the tracks of the railroad, with the result that it was not only reduced to its present triangular shape, but that while the base of the triangle rests on the boulevard at approximately the grade of the boule-

vard and the streets, the apex of the triangle is about 15 feet lower than the grade of these highways, rising as reconstructed to reach the bridge by which the grade crossing was abolished. Except for a few unattractive buildings, used for smaller sorts of business, and some advertising signs, the land remains unoccupied. There is approximately 4,148 square feet of land in the lot. It is in rather a prominent position and has a neglected, unsightly look. The assessed value of the land is \$20,500, and of the buildings \$5,100, a total of \$25,600. This land may easily become even more unattractive, and if covered by buildings would make a barrier to the unobstructed view which would render travel on the highways and the boulevard especially dangerous. There are electric car lines on both Main Street and Broadway, and both highways pass the land in question on a rather steep grade down to the Parkway, which in turn comes down at a grade on the westerly side of Main Street from the bridge over the Saugus Branch of the Boston & Maine Railroad. At both the junction of Main Street and the Parkway and that of Broadway and the Parkway it has been found necessary to keep a traffic officer to regulate travel and protect foot passengers, and especially school children on their way to and from school. The land in question, if in public ownership and free from buildings which obstruct the view, might easily be made attractive in appearance, and of a certain value as an open space for the protection of all sorts of travel on the Parkway and highways. It might also have value as a location for an attractively designed small service building for work on the Parkway, which, located back from the Parkway and highways under the bank, would not be in a position to obstruct the view from either. It might also provide, at the junction of the highways at the apex of the triangle, a shelter in a spot which is now very much exposed, and where considerable numbers of people coming from the Everett railroad station near by and from other points take the electric cars.

In view of these facts it seems to this Board that the purchase of this land and making it into a public park would be rather in the nature of a local improvement; and that if it were to be made by any public body, it might better be by the city of Everett than by this Board, with perhaps some contribution toward the cost from the park funds, or for the limited benefit of preserving open the view for parkway travel, and for the opportunity of using a part for a small service building. If preferred,

however, the acquirement might be made by this Board under special authority in case the larger part of the cost of acquirement and development were provided by the city of Everett. In either case it is suggested that 25 per cent. of the cost be borne by the Metropolitan Parkway funds, and the balance by the city of Everett.

All of which is respectfully submitted.

WILLIAM B. DE LAS CASAS,
EDWIN U. CURTIS,
ELLERTON P. WHITNEY,
EVERETT C. BENTON,
CHARLES J. BARTON,

Metropolitan Park Commission.

JAN. 10, 1917.

APPENDIX 3.

REPORT OF THE METROPOLITAN PARK COMMISSION AS TO PROVIDING SHELTER AND SHOWER-BATH FACILITIES AT THE SPEEDWAY PLAYGROUND IN CHARLES RIVER RESERVATION.

To the Honorable Senate and House of Representatives.

The Metropolitan Park Commission submits herewith the report required by chapter 78 of the Resolves of 1916 as to the feasibility, desirability and cost of construction and maintenance of shelter and shower-bath facilities at the Speedway Playground in the Charles River Reservation.

The resolve, chapter 78 of 1916, requiring this report, is as follows: —

CHAPTER 78.

RESOLVE AUTHORIZING THE METROPOLITAN PARK COMMISSION TO INVESTIGATE THE DESIRABILITY OF PROVIDING SHELTER AND SHOWER BATH FACILITIES AT THE SPEEDWAY PLAYGROUND IN THE CHARLES RIVER RESERVATION.

Resolved, That the metropolitan park commission be authorized and directed to investigate the feasibility, desirability and cost of construction and maintenance of a shelter, and of shower bath facilities, at the Speedway playground in the Charles river reservation, and to report to the next general court on or before the tenth day of January. [*Approved May 2, 1916.*]

The Speedway Playground referred to in the resolve is a parcel of land in Brighton, extending from Western Avenue to the northerly concourse of the Speedway track, and lying between the Soldiers Field driveway and the Charles River. The average length of the parcel is about 550 feet, and its average width about 160 feet. A considerable portion of this tract has been used for a number of years as a playground for children of fourteen years of age or less. It is equipped with 36 swings, 18 tee-ter-boards and a number of sand boxes, and has a small shelter building. Band concerts are also given occasionally on the premises. The Commission believes that a playground of this kind is

needed more than shower-bath facilities in this particular locality; and that the area which would be occupied by a shower-bath building, the necessary paths leading to it and the proper screen of shrubbery about it, would prevent the enlargement of the present playground facilities in the future to meet the needs of a growing population. The Commission also believes that the presence on or near the playground of boys and of men patronizing the shower baths would not be an entirely desirable feature in connection with the use of the playground by the younger class of children. On the other hand, the shower-bath facilities would be used very little by the children of the age of those who now use this playground; and the absence of these facilities at this point cannot be severely felt by the community because the city of Boston maintains ample shower-bath facilities at the North Brighton Playground, less than a mile distant from the Speedway Playground. For these reasons it is the opinion of the Commission that it is not desirable to provide shower-bath facilities at the location in question.

This conclusion would seem to dispose of the subject were it not that the resolve also requires the Board to report on the cost of construction and maintenance of shower-bath facilities on this location. The Commission, therefore, further reports on these topics: —

1. Except for the interference with the playground already referred to, it is perfectly feasible, as far as physical conditions are concerned, to provide shower-bath facilities at the playground location.

2. The cost of maintenance of a locker and shower-bath room at this playground would depend somewhat on the size and equipment of the building decided upon.

The locker and shower-bath building at the North Brighton Playground of the city of Boston is a brick building about 80 by 30 feet, and contains a locker room for boys, a waiting and drying room, and a shower-bath room with six showers. In the girls' side there are lockers and closets for dressing and two showers. There is also an administration room for the attendants, with racks and pigeonholes for towels. This building was erected in 1908 at a cost, including equipment, of about \$10,500. The estimated cost of a similar building to-day is from \$15,000 to \$18,000. A smaller reinforced concrete building, which would provide the shower bath and locker privileges of the city of Boston building, but without the administration room and other

conveniences of that building, could probably be erected and equipped at the present time for \$12,000. The annual cost of maintenance of such a building would vary in accordance with the length of time each year and the number of hours each day it was kept open for public use. If such a building were kept open for public use a period of six months, as from May to October, inclusive, of each year and for eight hours only each day, as from 9 A.M. to 6 P.M., the annual cost of maintenance would probably be not far from \$1,500 per year, including the cost of water. If, however, it proved desirable to keep the building open more than eight hours each day during this period, as, for instance, in the evening, so that men employed during the daytime could enjoy the privileges, the cost of maintenance would be considerably increased by reason of the necessity of practically doubling the force of attendants. Under these circumstances, the annual cost of maintenance would probably be \$2,000 or more per year.

All of which is respectfully submitted.

WILLIAM B. DE LAS CASAS,
EDWIN U. CURTIS,
ELLERTON P. WHITNEY,
EVERETT C. BENTON,
CHARLES J. BARTON,

Metropolitan Park Commission.

JAN. 10, 1917.

APPENDIX 4.

REPORT OF THE METROPOLITAN PARK COMMISSION REGARDING
A BOULEVARD FROM MIDDLESEX FELS RESERVATION IN
STONEHAM TO QUANNAPOWITT PARKWAY IN THE TOWN OF
WAKEFIELD, REQUIRED BY CHAPTER 87 OF THE RESOLVES
OF 1916.

To the Honorable Senate and House of Representatives.

The Metropolitan Park Commission presents herewith its report as to a boulevard from Middlesex Fells Reservation in Stoneham to Quannapowitt Parkway in the town of Wakefield, required by chapter 87 of the Resolves of 1916.

The resolve, chapter 87 of 1916, under which this report is made, is as follows: —

CHAPTER 87.

RESOLVE AUTHORIZING THE METROPOLITAN PARK COMMISSION TO MAKE
SURVEYS RELATIVE TO A BOULEVARD FROM MIDDLESEX FELS RES-
ERVATION IN STONEHAM TO QUANNAPOWITT PARKWAY IN THE TOWN
OF WAKEFIELD.

Resolved, That the metropolitan park commission is hereby authorized and directed to make surveys and plans for a boulevard from the junction of Main and South streets in Stoneham to or near Doleful pond in the said town, thence to the northerly end of Crystal lake in the town of Wakefield, and from said lake to Quannapowitt parkway in Wakefield, and to report an estimate of the probable cost of constructing the said boulevard to the next general court on or before the second Wednesday in January. For this purpose the said commission may expend a sum not exceeding five hundred dollars from the Metropolitan Parks Maintenance Fund. [*Approved May 12, 1916.*]

The land at the junction of Main and South streets in the town of Stoneham, on the easterly side of South Street, is in private ownership, under development as house lots, on which several houses have already been built; but on the westerly side it is held by the Metropolitan Water Board as land protecting the watershed of Spot Pond. It would be an expensive matter

to acquire land for the boulevard, as suggested by the resolve, on the easterly side of South Street; whereas on the westerly side the land is used only for gathering the water from the natural watershed of Spot Pond by culverts carrying it to Doleful Pond near by, as a basin from which it is discharged by pipes into Spot Pond Brook without entering Spot Pond Reservoir. Subject to the necessity of protecting the land for these uses, it seems likely that the land on the westerly side could be used for a boulevard without in any way interfering with the purposes for which it is held and used by the Metropolitan Water Board. For this reason the boulevard, concerning which this report is made, is planned to begin at the junction of Main Street and the roadway between South Street and Spot Pond Reservoir, which was built by the Metropolitan Water Board and now cared for by this Board. From this point the land to and past Doleful Pond is Water Board land, and beyond that point is unoccupied private land for most of the distance as far as Crystal Lake, and is used chiefly for farming purposes. The westerly shore of Crystal Lake, as far as Albion Street, is in private ownership; and while the plan proposed contemplates the acquirement of only enough for the roadway, it is obviously desirable that the land between the roadway and the pond should be acquired by the town of Wakefield for the protection of the watershed of the lake, which is the source of its water supply. From Albion Street existing public streets may be widened and connected except for a short distance, where private land would have to be acquired so as to give an ample roadway as far as Winn Street, which crosses the Boston & Maine Railroad by a bridge which would have to be rebuilt to North Avenue, which in turn connects with the land acquired for Quannapowitt Parkway, not yet constructed. This Parkway, if built, would start from the principal highway through Middlesex Fells, which in turn connects with Middlesex Fells Parkway, and in its course would cross various highways leading to Stoneham, Melrose, Saugus and Wakefield, and at its termination would connect with the Parkway and highways giving connection with highways running north and east from Lake Quannapowitt to Reading and cities and towns beyond, and to the east to Lynn, Lynnfield and towns of Essex County. The distance from Main Street, Stoneham, to Franklin Street, which leads to Stoneham and to Melrose Highlands and then to Saugus, is 5,200 feet; and from that point to the northerly end of Crystal Lake at Albion Street, which leads to the center of Wakefield, is 9,450

feet; and from there to Prospect Street, which leads to the southerly side of Lake Quannapowitt, is 2,700 feet; and to Quannapowitt Parkway, at the northerly end of Lake Quannapowitt, is 4,500 feet; a total for the entire route prescribed by the resolve of 4 miles.

Assuming that the land held by the Metropolitan Water and Sewerage Board could be used without further cost, the land required for the various sections of the Parkway, as above outlined, might probably be obtained for a cost not exceeding \$50,000 for the entire distance, and perhaps as far as Franklin Street for \$5,000, and from that point to Albion Street not exceeding \$25,000, and from Albion Street to North Avenue not exceeding \$20,000. Efficient co-operation of a local committee in securing these lands might induce considerable gifts of land and so materially reduce the cost. In the hopes of such co-operation, an appropriation of \$40,000, coupled with authority to make use of the Water Board lands, would probably prove sufficient.

The cost of construction of this Parkway fully carried out the entire distance would probably be not less than \$250,000; but while such extensive construction ought to be ultimately provided for if this Parkway is to be one which would fully serve public use in a form which would also induce such development of adjoining properties as would keep the Parkway attractive, it is not immediately necessary for the entire distance. It would serve all present needs and accomplish the main purpose of the Parkway if land for the entire distance were acquired at this time and construction were provided for only as far as Albion Street in Wakefield. For this purpose an appropriation of \$150,000 for construction would be sufficient.

While the resolve does not require any expression of opinion from this Board as to advisability of provision being made for this Parkway, it nevertheless seems to be within the spirit of the resolve for the Board to express such opinion. Stoneham is a town of moderate population upon high, healthful land, but with considerable area which is well suited to provide for a much larger population than it now has. At one time it had shoe factories and other manufacturing establishments, which, owing to changes in business conditions and the decrease in railway facilities, have gradually left it. It is now chiefly a residential town, but much hampered in its growth by a location somewhat apart from the main highways and lines of travel. For this reason the land required for this Parkway may now be obtained

at moderate prices, and the location and construction of the Parkway, or even the certainty of its location and future construction, would be a great inducement to the start of suburban development, for which the excellence of its land well suits.

Wakefield is a much larger town, located on a main line of the Boston & Maine Railroad, and the great highway from Boston to Reading. It is at the northerly side of the Metropolitan District, but has shown exceptional public spirit and good taste in its development, especially in the neighborhood of beautiful Lake Quannapowitt, one of the great ponds of the State. Crystal Lake is also a beautiful pond, used for water supply and now protected to some extent by public ownership of the edge of the banks. With its attractiveness, however, and its large and growing population Wakefield is reached by only one highway, which may be called a main radial highway, from Boston. This highway has been recently widened through Melrose and the southerly part of the town to accommodate the large volume of travel to Wakefield and to the cities and towns beyond, which must make use of this highway.

The route of the proposed Parkway would be through attractive meadow and farming land, between ledges and trees and along a beautiful lake. It would connect with Main Street and other roads and the Fells, which lead to a connection with Middlesex Fells Parkway and are in themselves parkways in effect. It would be a very attractive driveway and a very useful one, giving a more direct and attractive pleasure way than now exists for travel from the center and southerly part of the Metropolitan District to Stoneham and Wakefield and all the country and towns beyond, and in turn would bring Stoneham and Wakefield and the towns and country beyond into greatly improved relation with the center and most populous parts of the Metropolitan District.

To any one familiar with the growth and development of the Metropolitan District within the past twenty-five years, it is apparent that the center of the District is being closely occupied by development and building of houses, which make it in effect a city development or a city without intervening open spaces, except those which have been reserved for parks and parkways. It is also apparent that the suburban development is now proceeding in the outlying towns of the District in much the same manner as it was proceeding some twenty-five years ago in the central parts of the District, and rapidly occupying what was but a few

years ago unoccupied or farming lands. These two facts clearly indicate that the outlying towns must be provided with improved parkway and highway facilities in advance of a complete occupation of other open lands, if provision for adequate means of approach to and from the central part of the District is ever to be provided at a reasonable cost. The time of construction of such parkways need not be hurried, and indeed may be looked upon as something of a luxury, but the laying out of routes, and acquirement of lands at this time, in anticipation of the absolute necessity of construction, will be a very real economy. For this reason this Board recommends that provision be made at this time for at least the acquirement of the land for the Parkway suggested by this resolve.

All of which is respectfully submitted.

WILLIAM B. DE LAS CASAS,
EDWIN U. CURTIS,
ELLERTON P. WHITNEY,
EVERETT C. BENTON,
CHARLES J. BARTON,

Metropolitan Park Commission.

JAN. 10, 1917.

APPENDIX 5.

REPORT OF THE METROPOLITAN PARK COMMISSION AS TO ESTABLISHING CAMPING GROUNDS IN THE METROPOLITAN DISTRICT.

To the Honorable Senate and House of Representatives.

The resolve, chapter 28 of the Resolves of 1916, under which this report is made, is as follows: —

CHAPTER 28.

RESOLVE PROVIDING FOR AN INVESTIGATION BY THE METROPOLITAN PARK COMMISSION AS TO THE ADVISABILITY OF ESTABLISHING CAMPING GROUNDS AND EXTENDING THE USE OF THE PUBLIC PARKS IN THE METROPOLITAN DISTRICT.

Resolved, That the metropolitan park commission be authorized and directed to investigate the necessity, or desirability and the practicability of establishing camping grounds in the public parks of the metropolitan district. The commission shall report to the next general court not later than the second Wednesday in January, with such recommendations for legislation, if any, as it may deem expedient, together with information as to the sites which could be made available for this purpose, and as to the cost of establishing and maintaining the said camping grounds with such accessories and equipment as might be necessary to make the camps habitable and sanitary. [*Approved March 27, 1916.*]

The thought which inspired those whose petition led to the resolve requiring this report arose undoubtedly from the knowledge that there are great open spaces and areas of woodland in the Metropolitan Parks which give the inspiration and restfulness of contact with nature and the healing influence of pure air, and from a belief that many people would gladly change to these healthy and restful surroundings from the strain and infection of city life for at least occasional brief periods if they had the means or opportunity to do so, or whose life would be benefited if permitted to rest for a time in such surroundings as exist in the greater reservations of the Metropolitan Parks System.

The purpose of the resolve is undoubtedly, therefore, to require

this Board to consider and report as to the practicability of affording this opportunity of public welfare by establishing camping places in the Metropolitan Reservations, and the probable cost of so doing.

This Board has entire sympathy with the thought of those whose petition brought about this resolve and with the purpose of the resolve, and has investigated and considered the subject matter of the resolve in this spirit.

At the outset it may be said that there are localities where camping grounds might be established within easy reach of the population of the Metropolitan District, both within and without the District, and within and without the Metropolitan Parks of the District. So far as is known, however, no such camping grounds have been established in this part of the country as a business enterprise, and few have been established by private individuals or groups of individuals for personal use except as incident to permanent ownership of what are known as summer cottages, or in connection with some form of sanatorium or boarding place for invalids. The desire for such camping places, or the habit of seeking and using them, does not seem to be an already well-established one, and there are few, if any, precedents to help in gathering information or forming opinions in regard to the matter. The establishing of camping grounds at public expense would therefore seem to be experimental and in the line of development and use of the reservations, which might or might not prove to be of real use or even successful.

For the establishing of such camping places there would have to be proper water supply, sewerage, care of refuse, toilet facilities, and regulation of conduct of campers such as would insure safety in matters of health, seemly conduct, security and the peace and comfort of life essential to community life, and protection of the property of the Commonwealth from injury or destruction. All the public would have to be given equal privileges and the same consideration and protection. These prerequisites to the establishing of camping grounds make it evident that it would not be safe or feasible to permit individual camps scattered about the reservations. Adequate knowledge could not be had as to the individuals asking to establish such camps, or as to their conduct after the camps were established. Nor could adequate provision be made for water supply and drainage and cleanliness in such individual camps, nor except at great expense, for protection to the campers or their property.

Consideration of this matter would therefore seem to be narrowed to consideration of the practicability of establishing camping grounds where all who came and gave reasonable evidence of their fitness for the privilege might be permitted to camp near each other.

For establishing such camping places it would be necessary to know, first, that applicants were enabled to live together, and, second, that they were in such condition of health as to make it safe for them to live in camps close to others. Obviously this would require such a system of application for the privilege, and of investigation, and perhaps of granting or refusing permits as might cause delay and annoyance, and would certainly cause expense which might limit the inclination of the public to avail themselves of the privilege. It would also necessitate either the exclusion of all who were not in good health or the establishing of separate camping places for those who were not in good health, and such supervision and control as would be required in the best sanatoria. And as this Board has no authority in such matters, and is not qualified or expected to deal with such matters, authority in this direction would have to be delegated to the State Department of Health or to some other public body fitted for, and charged with, the duty of establishing and regulating such camps, subject to such further regulations as this Board might deem necessary for the preservation and protection of the reservations. This would have the disadvantage of a more or less divided authority in the matter.

Except, therefore, as to the matter of assigning locations and making general regulations in regard to the camping places necessary to the protection of the reservations, it is not practicable for this Board to establish and maintain camping places for those ill with communicable or offensive diseases.

This again narrows consideration of the matter to the establishing of community camping grounds for those in good health. The establishment of such camping grounds to a limited extent is perfectly feasible, but would be of doubtful success and would be attended by considerable expense. It would of necessity involve much the same preliminary investigation, and sometimes rather delicate decision as to the advisability of granting permits to occupy the camps. It would require regulation of camp equipment and camp conduct, and the further expense of providing water supply, sanitary conveniences and buildings where cooking and washing could be carried on; and in spite of the great acreage of such reservations as Blue Hills and Middlesex

Fells, the number of suitable locations within reasonable distance of transportation and food supply is limited; and if the experiment were successful, it might cause considerable injury to the woods or else lead to suggestions of discrimination and inadequate provision which would at least be annoying and difficult to explain.

Assuming, however, that with patience and good effort all these difficulties could be overcome, the matter of expense would be a serious and somewhat uncertain one. As to this, there is little or no information to be obtained. It can only be estimated on imperfect data, with the feeling that any estimate is likely to prove inadequate. Assuming, however, that each camping place would be provided with twenty-five tents, 10 by 12, with fly and board floor, two wooden, sand-box sanitariums, a building for cooking and washing, and proper water supply and drainage, each tent to accommodate two persons, the probable cost of providing each camping place ready for use would probably be not less than \$4,000. The annual cost of supervision and maintenance of each camping place, including policing, the care of sanitariums, removal of garbage and repairs, would probably be not less than \$3,000. These estimates are made on the assumption that a charge would be made to each camper for light and fuel sufficient to pay the cost of these items, but otherwise there would be no charge for the use of tents and buildings.

Upon careful consideration of the entire matter the Board is not of the opinion that it is advisable to undertake this work. It has been the custom in the past to give permission from time to time to such definite organizations in charge of responsible officers as the Boy Scouts to camp for a brief period at designated points in the reservations. Other requests have been rarely received. Until requests for such camping privileges become more frequent, it would seem to be better to postpone an endeavor at so considerable an expense to anticipate public desire in this matter.

All of which is respectfully submitted.

WILLIAM B. DE LAS CASAS,
EDWIN U. CURTIS,
ELLERTON P. WHITNEY,
EVERETT C. BENTON,
CHARLES J. BARTON,

Metropolitan Park Commission.

APPENDIX 6.

REPORT OF THE METROPOLITAN PARK COMMISSION ON THE
EXTENSION OF NONANTUM ROAD, CHARLES RIVER RESER-
VATION, TO MAPLE AND JEFFERSON STREETS.

To the Honorable Senate and House of Representatives.

The resolve, chapter 143 of the Resolves of 1916, under which this report is made, is as follows: —

CHAPTER 143.

RESOLVE AUTHORIZING THE METROPOLITAN PARK COMMISSION TO DETERMINE A ROUTE FOR AN EXTENSION OF THE ROAD IN THE CHARLES RIVER RESERVATION FROM THE BRIGHTON DISTRICT OF THE CITY OF BOSTON TO THE CITY OF NEWTON.

Resolved, That the metropolitan park commission is hereby authorized and directed to investigate and determine the most feasible and desirable route for the extension of the present road in the Charles river reservation from Brooks street in the Brighton district of Boston to Charlesbank road in Newton, from a point at or near the present junction of said road with Charlesbank road to Maple or Jefferson streets in the city of Newton, or such other point as said commission may deem best, and to report its findings, including estimates of cost of land and construction involved in said extension, to the general court on or before the first Monday of February, nineteen hundred and seventeen. In carrying out the provisions of this resolve, the commission may expend a sum not exceeding five hundred dollars, from the Metropolitan Parks Maintenance Fund.
[Approved May 24, 1916.]

The present road in the Charles River Reservation from Brooks Street, in the Brighton District of Boston, to Charlesbank Road, in Newton, referred to in the resolve, was built by this Board under the authority of chapter 539 of the Acts of 1913 and chapter 188 of the General Acts of 1915. These acts provided for improvements in the Charles River between North Beacon Street

and Galen Street, and as incident thereto the construction of the present roadway, by utilizing for the purpose of constructing the roadway material dredged from the river bed in the course of the improvement of the river. It is now fully constructed from Brooks Street to Charlesbank Road. Charlesbank Road is a narrow, private way, in rather poor repair, leading from Nonantum Road, parallel to, and somewhat removed from, the river bank, to a connection with Washington Street not far from Nonantum Square in the city of Newton. There is no other present outlet for Nonantum Road into the city of Newton. At its easterly end Nonantum Road connects by Brooks Street with North Beacon Street, which runs toward the Brighton District of Boston and is the main connection on the southerly side of the river with Boston and Brookline. The land along the river, between the point where Nonantum Road connects with Charlesbank Road and Maple and Jefferson streets, is the property of the Commonwealth and in the care of this Board as a part of Charles River Reservation. For much of the distance it is a rather steep bank with trees which protect and make the river attractive. Just before reaching Maple and Jefferson streets it becomes a level, rather neglected piece of land. Jefferson Street is a street of the city of Newton, which runs southwesterly to Center Street, near Nonantum Square. Maple Street is a street of the town of Watertown, which also runs westerly to Center Street. Center Street extends from Nonantum Square to the point where California Street, from the westerly portions of Newton, joins it at the Galen Street bridge, and thence crossing the Galen Street bridge runs to Watertown Square.

The extension of the present Nonantum Road along the river bank to Maple and Jefferson streets would give a greatly improved means for reaching all parts of Newton, Watertown and Waltham along the southerly side of Charles River, and in turn for reaching Boston and Brookline from the first-named cities and town. The length of road to be constructed would be approximately 2,200 feet. Owing to the steepness of the bank and the desirability of preserving its attractiveness, the extension would have to be constructed in part by filling into the river with a wall or rip-rap curb on the river side. The plan for the extension has been studied with great care, and it is the opinion of the engineer and landscape architect that the road may be built in a way to preserve the attractiveness of the bank of the river and at the same time avoid serious encroachment on the river. The

estimated cost of construction would be not far from \$50,000. An appropriation of this amount in addition to the Charles River Basin Loan, under which the present road was built, is therefore recommended for this project.

All of which is respectfully submitted.

WILLIAM B. DE LAS CASAS,
EDWIN U. CURTIS,
ELLERTON P. WHITNEY,
EVERETT C. BENTON,
CHARLES J. BARTON,

Metropolitan Park Commission.

JAN. 31, 1917.



